FLORIDA WILDLIFE®

Volume 43, Number 4
July-August 1989

Tossing this trash overboard could leave death in your wake.

Throwing a few plastic items off a boat may seem harmless enough. What's one more six-pack ring, plastic bag, or tangled fishing line?

Actually, it's one more way a fish, bird, seal, or other animal could die.

Fish, birds, and seals are known to strangle in carelessly discarded six-pack rings. Sea turtles eat plastic bags – which they mistake for jellyfish – and suffer internal injury, intestinal blockage, or death by starvation.

Other plastic trash can be dangerous, too. Birds are known to ingest everything from small plastic pieces to plastic cigarette lighters and bottle caps.

Birds, seals, sea turtles, and whales die when they become trapped in old fishing line, rope, and nets.

Plastic debris also can foul boat propellers and block cooling intakes, causing annoying – sometimes dangerous – delays and causing costly repairs.

So please, save your trash for proper disposal on land.

That's not all you'll be saving.

To learn more about how you can help, write: Center for Environmental Education, 1725 DeSales Street, N.W., Suite 500, Washington, D.C. 20036.

A public service message from:
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FLORIDA WILDLIFE®

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Cover

This issue features a painting of a pair of reddish egrets by Dee Smith, the winner of our cover art contest. To order a limited edition print, see page 37 of this issue.

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BUTCHER BIRD

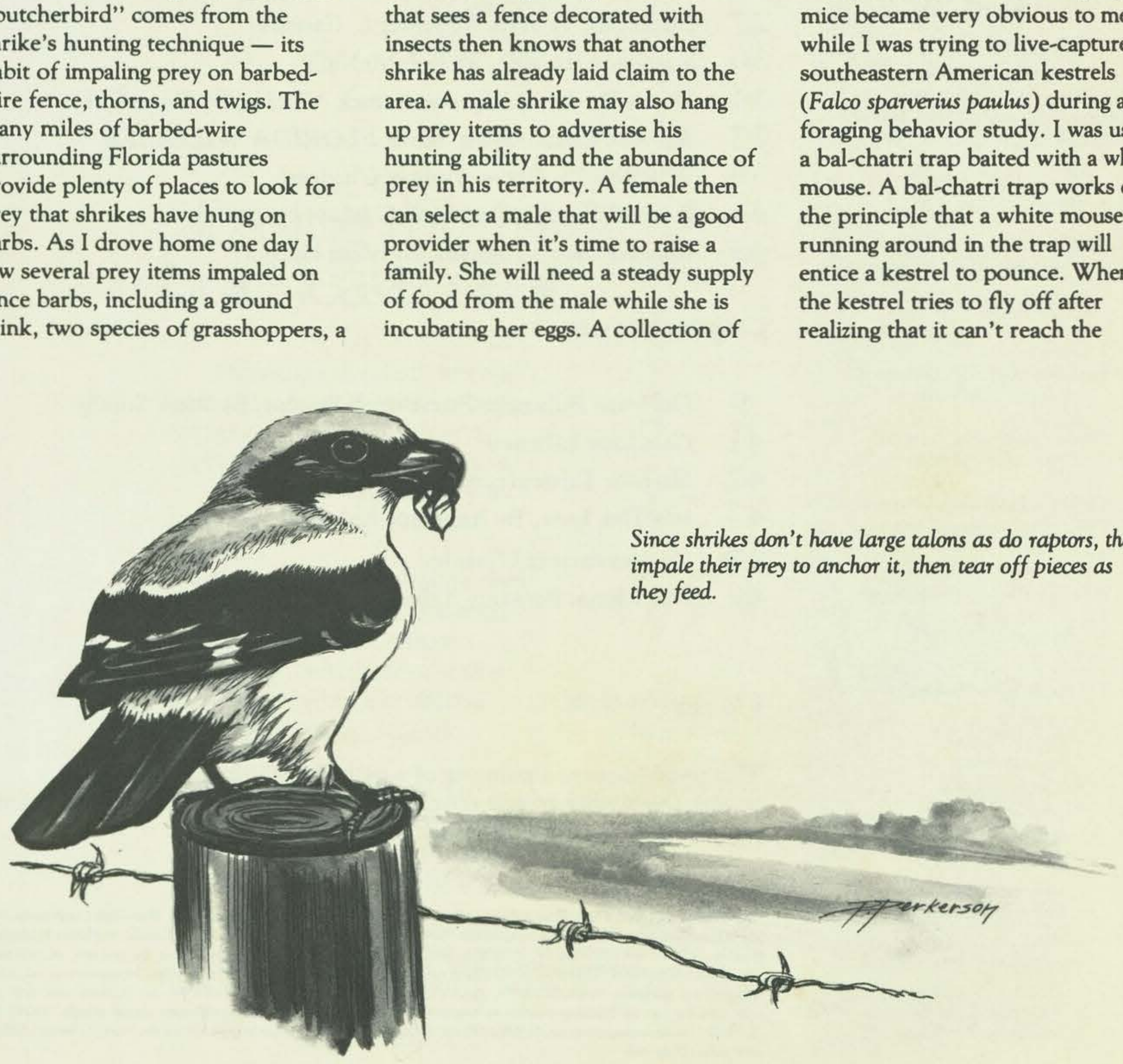
By Petra Bohall Wood

The butcherbird! It seems a gruesome name for such a handsome little creature as the loggerhead shrike (*Lanius ludovicianus*). Perhaps its other alias, French mockingbird, more appropriately describes its appearance. Its black mask, wings and tail sharply contrast with its white underside and gray back, making it look like an elegant, dressed-up mockingbird. The name "butcherbird" comes from the shrike's hunting technique — its habit of impaling prey on barbed-wire fence, thorns, and twigs. The many miles of barbed-wire surrounding Florida pastures provide plenty of places to look for prey that shrikes have hung on barbs. As I drove home one day I saw several prey items impaled on fence barbs, including a ground skink, two species of grasshoppers, a cricket, and the remains of a spider.

Since shrikes don't possess talons for gripping their prey while feeding, as do raptors, they impale their prey to anchor it, then tear off pieces as they feed. Often, shrikes leave prey items stuck on barbed-wire fences and seemingly forget to eat them. Some researchers think that male shrikes make a special effort to do this in the spring to mark their territories. A passing male shrike that sees a fence decorated with insects then knows that another shrike has already laid claim to the area. A male shrike may also hang up prey items to advertise his hunting ability and the abundance of prey in his territory. A female then can select a male that will be a good provider when it's time to raise a family. She will need a steady supply of food from the male while she is incubating her eggs. A collection of prey that the male has gathered and impaled on a barbed-wire fence is a convenient pantry.

Shrikes mainly capture small prey items such as grasshoppers, crickets, lizards, frogs, beetles, and spiders. Occasionally, they will eat mice and small birds. The shrike's large head and hooked bill enable it to kill these larger prey with strong pecks to the back of the neck.

The fact that shrikes will prey on mice became very obvious to me while I was trying to live-capture southeastern American kestrels (*Falco sparverius paulus*) during a foraging behavior study. I was using a bal-chatri trap baited with a white mouse. A bal-chatri trap works on the principle that a white mouse running around in the trap will entice a kestrel to pounce. When the kestrel tries to fly off after realizing that it can't reach the



Since shrikes don't have large talons as do raptors, they impale their prey to anchor it, then tear off pieces as they feed.

mouse, small nylon nooses pull closed on its legs. Though the trap doesn't injure the bird, kestrels are often too wary to be tricked into attacking.

Unfortunately, my trap attracted a hungry shrike who didn't hesitate a moment to go after an easy meal. After I untangled him from the nylon nooses, I put a numbered aluminum band on his leg and released him. I then had the time-consuming task of resetting the nooses to try again to catch a kestrel. No sooner had I left the trap, when my persistent little friend attacked the mouse again and naturally became tangled in the nooses! I released him again and reset the trap, hoping that he had learned his lesson by this time. Unfortunately, the shrike must have believed in the adage, "The third time is the charm." As you may have guessed, I never did catch a kestrel that day.

My research included counting shrikes along rural roadsides in north-central Florida, two days a week for a year. During this time, I learned what types of habitats and perches shrikes use at different times of the year.

I saw shrikes most often in improved pastures which tend to ▷

ILLUSTRATIONS BY PEGGY PERKERSON

have very low-growing vegetation. Shrikes may be able to see and capture prey more easily here than in tall, weedy vegetation. I also saw shrikes in other open habitats such as crop fields and overgrown pastures, but they often frequent roadsides in these two habitats. In crop fields, use of insecticides may make prey less available, and the tall vegetation of overgrown pastures give animals more places to hide, so sighting and capturing them may be more difficult. In contrast, vegetation along the roadside is very similar to improved pastures because roadsides are mowed periodically.

Shrikes perch most often on power line wires where they have a good vantage point for hunting, but they also hunt from other exposed perches such as trees, fences, and shrubs. They often perch higher during the summer than the winter, possibly to be more conspicuous to a potential mate during the breeding season. During the winter, they perch closer to the ground, possibly for more efficient thermoregulation.

Shrikes are very abundant in Florida and can be seen from almost any road that passes through open habitats. We are very lucky that Florida still has so many loggerhead shrikes, because in most eastern states these birds are very rare. No one really knows why shrikes declined so dramatically in other states, but loss of suitable nesting habitat as well as DDT and other pesticides are likely culprits. The most severe decline in wintering populations of shrikes has occurred in the southeastern states of Virginia, North Carolina, South Carolina, Georgia and Florida. Florida's breeding population seems to be stable, but breeding populations of shrikes in the North are so low that very few, if any, migrate to the Southeast during the winter.

So if you see a shrike while driving along a country road, take a few moments to stop and watch. It may surprise you by suddenly darting into the grass and returning to a perch with a grasshopper for its pantry.

Petra Bohall Wood is currently doing doctoral research on bald eagles in the Department of Wildlife and Range Sciences at the University of Florida. She also works as a biologist with the Florida Cooperative Fish and Wildlife Research Unit.

Fishing the Sunny Side

By W. Horace Carter

Bright sunlight sparkled on the calm waters of north central Florida's Orange Lake early that summer morning. Henry Konkel and I quickly baited 10 hooks with mini-jigs and tiny minnows, poked the poles through the holders on the gunnels, headed away from the wind and began anxiously anticipating a speckled perch strike. In the open water, Florida crappies, known as specks or speckled perch, can seldom refuse such morsels. We waited just a few minutes before Henry dragged a two-pounder over the side.

I soon got a nice speck off the port bow pole that compared favorably with the lunker that my partner had landed. Then we trolled right over a fine school of 10-inchers that were hugging the bottom in about 10 feet of water. All at once half our lines tightened and the corks disappeared. For the next five minutes we were untangling lines and pouring fish into the two livewells on my Ranger Fisherman speck-catching machine.

"Have you noticed a strange sequence in the way the fish are biting this morning?" I asked Henry.

"No, not particularly, I just know we're having lots of great action," he said.

"Yes, but we have the same number of lines and hooks out on both sides of the boat and others in the front and back. Every strike this morning has been on the east side of the boat, the sunny side, as we head north with the wind. We haven't had a nibble on the side of the boat away from the sun. That certainly means *something*," I said.

"You're right. I hadn't thought about it, but these corks on the left of the boat haven't shown that anything was even near them. Got any explanation for that?" Henry invited my prognosis.

"Yes, I've noticed it for years but it seems to be more pronounced today—specks almost always strike on the sunny side of the boat," I replied. "Of course, there's sun shining on both sides, but, on the port side, we cast a shadow. The higher we sit or stand, the further out that shade falls on the water, even if it is early in the day."

Years ago I discovered that I could catch more fish by looking at my lines on the sunny side of the boat than on the so-called shady side. That's not to say you won't ▷

HORACE CARTER

catch some fish on both sides—you will. But you'll probably catch three on the sunny side to one on the shady side. You'll also catch some from the bow of the boat when fishing straight ahead and some when trailing a line from the stern. The sun doesn't appear to have much to do with strikes in front of and behind the boat. It's the lines perpendicular to the gunwales and parallel to the water that are mostly affected.

As the sun gets higher in the day and the shadow gets closer to the boat, there seems to be no difference in the strikes on one side or the other. But both early and late it seems to me that you have to fish the sunny side to catch the most fish.

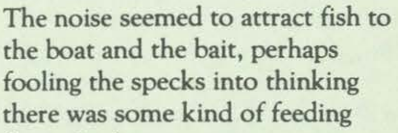
Another tip that works for me is to make a habit of fishing the same poles in certain spots every day. I think I get used to the line and cork action from a particular rod holder and I'm more likely to spot a light tap than if I keep moving my poles from one holder to another. A long, stiff pole reacts differently to strikes than a long, limber one, for example. Also, if you have more line out on one pole than another you may learn how to watch that slack better if it's in the same position each time you troll for specks. Or, you may have more lead on one line than another.

Difference in lead on a light test monofilament makes a lot of strikes appear entirely different. By watching your corks, lines and pole tips in the same holders day after day, you unconsciously become educated to that particular fishing stick's idiosyncrasies. You know what to expect under all conditions and you become a more successful speck catcher.

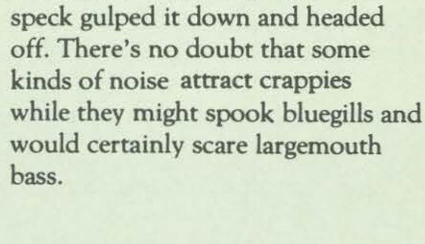
That morning, when Konkel and I were observing the sunny side up and documenting it as the best side to catch crappie while trolling in open water, we kept a mental note of the fishing action. Of the first 15 specks we landed, a dozen were caught on the sunny side. We fished until shortly after 11 a.m. and the last hour or so, we had 10 on each side of the boat and three from the stern. Strangely, none hit the hook directly in front of and near the trolling motor prop, but sometimes it catches more than any of the others.

I have often said that the whirling prop attracts speckled perch and I'm not sure that it doesn't. I know that certain noises seem to bring the specks a-running. I've seen some veteran, native specks fishermen on Lakes Griffin, Kissimmee and Tarpon slap a paddle in the water time after noisy time when fishing was otherwise quiet. Often, following that pandemonium, the corks would pop under and fish would come tumbling to the surface. The noise seemed to attract fish to the boat and the bait, perhaps fooling the specks into thinking there was some kind of feeding frenzy in that area.

On other occasions I have watched anglers beating the tips of their fishing poles in the water, then dropping a minnow right into the spot where the noise was made. Many times the cork didn't even stop. It just kept on going as the speck gulped it down and headed off. There's no doubt that some kinds of noise attract crappies while they might spook bluegills and would certainly scare largemouth bass.



A TruTurn hook and jig make a fine crappie catcher.



Now that Florida speck catchers have learned that trolling the open water is the best year-round method for putting these gourmet fish in the boat, anglers in other states are getting the message. A gentlemen called me from Indiana recently who had read my first story about trolling Mini-Jigs (Midsouth Lures, Jonesboro, Arkansas) with small minnows impaled through the eyes. "Now I catch a dozen times more crappies than my fishing friends do. I'm obliged to you forever for unlocking this well-kept secret," he said.

Mini-Jigs in that era were developed and distributed by Bob Garland, a bassing professional from Arizona. A similar jig now comes in a variety of colors and it has the same fine fish-catching qualities of the Garland lure. In most Florida waters, the baby pink color on a 2/0 TruTurn hook is as good a crappie catcher as you can get. Yellow and white colors also work well, and occasionally you can have success with one of the jigs that has a black or red head and a white or yellow tail. But for general everyday success, the pink has recently been in vogue in Florida's fishing waters.

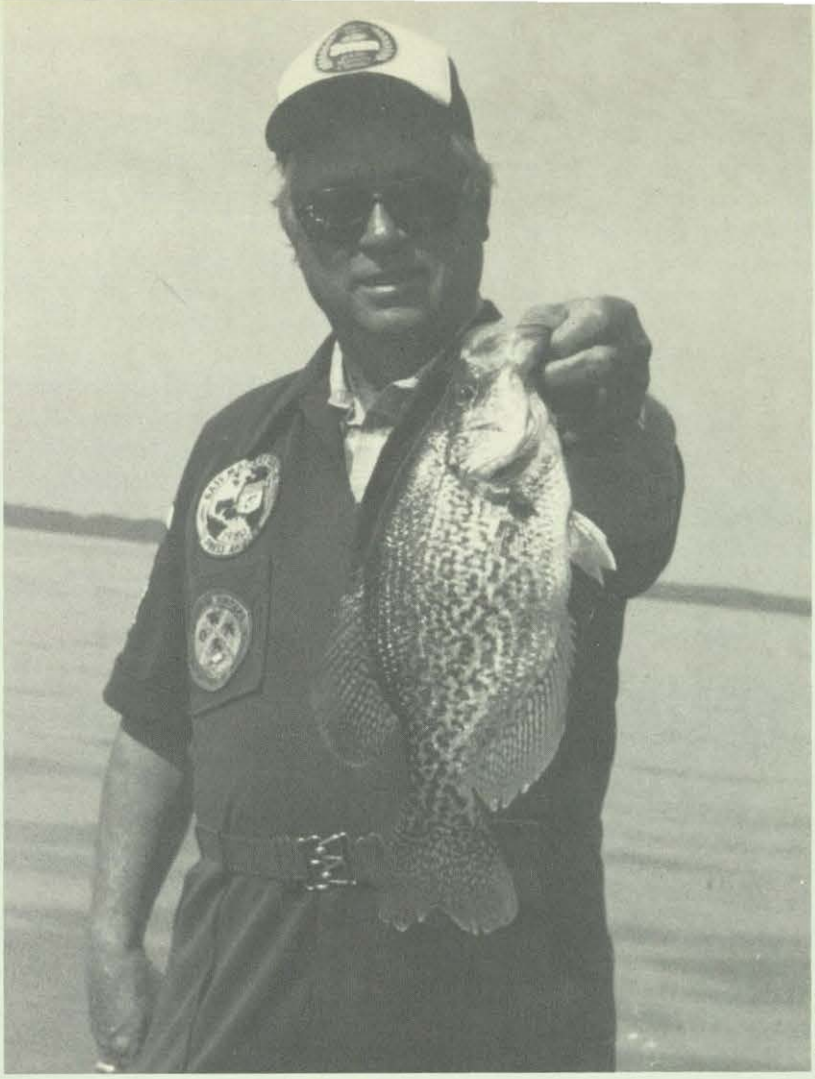
It's important to troll your jig and minnow combination about a foot off the bottom when possible. That's not difficult in Florida, where most lakes are 15 feet or less in depth. If you're fishing in deeper water, fish about a foot deeper than your pole to be comfortable landing a fish. But specks will rise to a lure and minnow many times from deeper suspension. They will almost never go down to take a bait. So, if you're trolling a lure in 30 feet of water, you might still have some success at 15 feet or thereabouts.

To compensate for the wind and current, vary the number and size of shot on a line. If the wind is calm and there is little or no current, the ideal is three No. 2 lead shot. I prefer the clothespin type by Water Gremlin, clamped eight inches apart on the line, the first one the same distance above the hook. The bobber should be small and easy to pull under—my choice is a two-inch styrofoam, white and red. It takes very little effort to pop that cork under when it gulps your jig and minnow down. Big specks often strike so quickly and viciously that the first clue you have a bite is seeing or hearing the pole slap the water. This is particularly true when fishing the 12-foot Lew Childre & Sons fiberglass, telescopic poles that are limber and bend more than most stiff cane poles. You can probably save more big specks on the Childre poles by just hanging on and letting the fish work off its energy and frustration. But if you're in a school of half-grown specks, you can boat them faster with a stiff 10-foot cane pole.

I like to yank specks out of the water and over the gunwales quickly, without using a landing net. Nets save some specks' tissue-thin mouths, but it takes so long to untangle the hooks, lead and bobbers from the nylon mesh nets that I lose more time than I save fish.

I also recommend having no more than about 18 inches of line between the end of the pole and the cork. I think when the pole is secured to the boat with a rod holder, this short distance gives the hook and lure more action than when there's several feet of line between the pole tip and the cork. Distances less than 18 inches may allow your fish to pull the pole into the water too fast for you to grab the pole and get the fish out. Over the years, I'm sure the 18-inch distance has been best for me. And for those who insist upon holding or sitting on their poles, as I did for years before awakening, there's no substitute for pole-holders. It makes fishing much easier and I'm sure the catch rate is greater.

Some people have "drifted" for specks in Florida and insist they can catch just as many drifting with the wind on the side of the boat as when trolling head-first with the wind. I doubt they really do catch as many. They then have little control of the boat's speed—it might be so calm that they couldn't move at all. Furthermore, the poles trolled with my Motor Guide run smoothly and ▷



HORACE CARTER

PEGGY PERKERSON

at the speed I want them to move. I can maintain the hooks a constant distance from the bottom and can move to wherever I think another school may be holding up. I seldom troll into the wind because it just isn't productive for me. I prefer to go with the wind and if it's blowing above 15 miles per hour, I often use the trolling motor to keep the boat straight, letting the wind carry the boat along at a proper speed. Find the one speed that will attract specks. Trial and error with a good, variable-speed trolling motor is the best way.

And, though contrary to the observations of many great crappie catchers, overcast and cloudy days do not increase my catch success. I like the bluebird days. If I had a choice, I would prefer that the wind be calm too. Open water speck fishing is the year-round way to put fish on the dinner table. I've yet to find a better species for the skillet than a plain old black crappie—speckled perch for Floridians.

And don't forget the sunny side.

W. Horace Carter, founder of the Tabor City Tribune, a weekly North Carolina newspaper, won the Pulitzer Prize for Meritorious Public Service in 1952. He is the author of 12 nonfiction outdoor books and more than 2,000 magazine articles. Carter has served several terms as president of the Florida Outdoor Writers Association and the Southeastern Outdoor Press Association.

HORACE CARTER

Delicate Balance

Species: Purse-web Spider (*Sphodros abboti*)

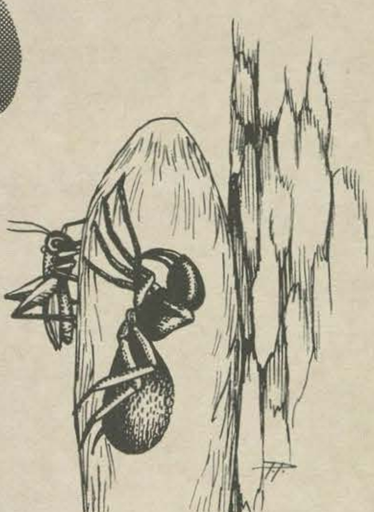
Rising from the bases of trees bordering the Apalachicola River are little, silken tubes that stretch upwards about 25 centimeters. The tubes are pure white on the inside but on the outside they're covered with lichen, small particles of sand, and other debris, so they're well-camouflaged against the trunks of the trees supporting them. Each of these tubes is the home of the rare and primitive purse-web spider, *Sphodros abboti*. In Florida they are known predominantly from moist woodlands in the northern third of the state, from about Gainesville northward. Since riverfront property is a prime target for real estate development, wetland forest is in decline and with it the purse-web spider, because it cannot survive in other areas.

The species was first described and given the name "purse-web spider" by John Abbot, an Englishman who settled in Savannah, Georgia, during the late eighteenth century. "This singular species," he wrote, "makes a web like a money purse to the roots of large trees in the hammocks or swamps, five or six inches out of the ground, fastened to the tree, and the other end in the ground about the same depth or deeper. To the bottom of that part in the ground the spider retreats. I imagine they come out and seek their food at night as I never observed one out of its web. In November, their young ones in vast numbers cover the abdomen of the female and the abdomen then appears very much shrunk. The male is the smallest but has the longest nippers. Taken in March and is not common."

John Abbot was wrong about one thing: if the spiders are like their European counterparts, they do not even come out of their webs at night to feed but always remain inside, capturing insects that crawl over their tubes by striking at them through the silk. In 1885, Mr. Frederick Enock described how the lone British species — whose nests lie along the ground, not against trees — dispatched a large blowfly. After positioning itself in the tube underneath the fly, it thrust its fangs through the silk and the fly. There followed "a crunching sound as the spider closed and almost crossed the top fangs around the prey." After several tugs, the insect was pulled within the tube, and a few minutes later the rent in the tube was repaired so carefully that it was difficult to detect where it had been.

What does the Florida purse-web spider itself look like? Females are about 25 millimeters long, dark brown to black. Males are smaller and of an irridescent, gun-metal blue color. Neither is ever seen unless they are teased out of their webs. The presence of tiny tubes on trees indicates that the young become independent when still quite small. Webs are built on a variety of different tree species — sweetgums, oaks, magnolias, and others — in low hammock situations. Some tubes split into two or three towards the base of the tree, allowing the occupant more room for its surreptitious maneuvers.

The most extensive observations of the species were made by the Reverend Henry C. McCook in the 1880s on a visit to Merritt Island. At that location, "palmetto trees" were said to be a common web-building site, though McCook's drawings actually indicate palm trees. As many as "thirteen tubes, great and small, extended around a large portion of the base of one palmetto trunk." McCook carefully observed the tube-weaving behavior of the spiders in Florida, but eventually he had to return home. He tried to continue his studies by having spiders sent to him, but achieved no success.

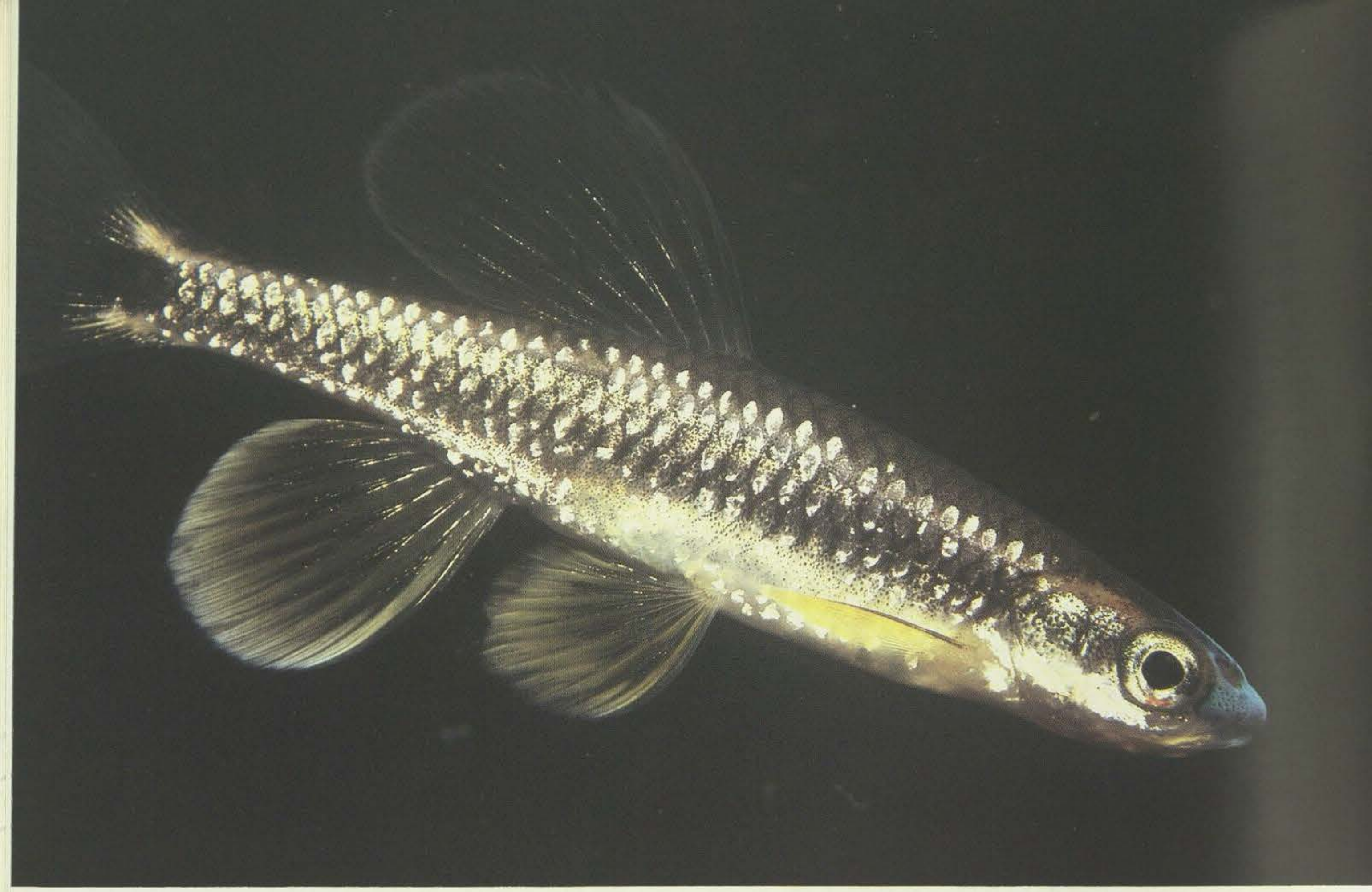


A cross-section of the purse-web shows the hunter about to take its prey. Development threatens the riverfront woodlands this species inhabits.

"Efforts to pursue my studies of the purse-web spider," wrote McCook in 1888, "were prevented by the loss of the living specimens sent me by Miss Wittfield from Florida. We exhausted our ingenuity in providing protection for packages sent through the mail, but not a spider lived. Evidently the species is more sensitive to such confinement than many others. I regret to record that since writing this note the young lady here mentioned has died. Her keen and intelligent interest in insect life are well known and were highly appreciated not only by myself but by other entomologists." Perhaps not surprisingly for a man of the cloth, McCook was left to conclude that "the Great Over-Force while planning and directing, preserving and governing all creatures and all their actions, has developed for the purse-web spider the interesting habit of spinning tubes or cylinders as a protection to the body."

— Peter Stiling

Peter Stiling is a research associate in the Department of Biological Sciences at Florida State University.



Bluenose Shiner

Florida's Rare Fish

By Gray Bass

Two crew-cut, jug-eared boys lean precariously from the edge of the railroad trestle, peering between bare feet to see if their crickets are dangling into the black pool below the beaver dam. As the early summer sun eases the mist from the surrounding swamp, Oscar and Leroy glimpse tiny flashes of light as minnows venture from the dark fringes of aquatic vegetation. Downstream, a prothonotary warbler sings as the two fishermen listen for the dreaded wail of the Pensacola and Northwest locomotive and argue whether the minnows would grow large enough to eat crickets.

Out-of-sight and out-of-mind and almost forgotten by all but a handful of ichthyologists, rare and endangered fishes don't enjoy the public sympathy that is often lavished upon creatures bearing feathers or fur. If these fish were all as brightly hued as painted buntings or as appealing as young seals, a Cause and Following would arise for their preservation. If rare minnows were glamorized like whales are, T-shirts would sport romanticized likenesses.

Muddying the waters even more, anglers like Leroy and Oscar usually categorize fishing as "hawg-hunting" or "perch-jerking" as they flip popping bugs beneath the willow branches of their favorite stream. They maintain that fish come in five classes: largemouth bass, bream, catfish, "minners," and the packaged, frozen kind. Even when they notice schools of flashing minnows, they usually only recognize two varieties: roaches and creek minnows.

Ichthyologists, people who study fish professionally, say about 289 fish species live in, or occasionally enter, Florida's freshwaters. Native North American freshwater species comprise 113 of the total, the rest are marine or brackish water inhabitants. Only about two dozen of the native freshwater species are sport or commercial fishes. Now, that places about three-quarters of all Florida's freshwater fishes in the miscellaneous "minner" category, doesn't it? Actually, most of these are not minnows. Leroy and Oscar would be amazed to discover 26 kinds of native minnows inhabit creeks, springs and rivers in Florida. The rest are mostly suckers, killifish and darters.

Naturally, not all miscellaneous fish are rare and endangered; many are abundant and widespread. Conversely, some species of supposedly common sunfish are rare or threatened, including some caught by anglers. Suwannee bass and shoal bass are rare species. At the same time, not all rare and endangered species are freshwater forms, several being saltwater or estuarine species such as the saltmarsh topminnow and snook.

Current Florida regulations recognize three fishes as endangered: blackmouth shiner, Okaloosa darter and shortnose sturgeon. Two others are officially listed as threatened: crystal darter and Key silverside. Eleven additional species are considered to be species of special concern. Naturalists who study Florida fishes generally agree that at least another two dozen species are rare, endangered, threatened or species of special concern.

Blackmouth shiners and Okaloosa darters are the best known of the endangered species. Small, rather undistinguished minnows, blackmouth shiners occupy only quiet, vegetated backwaters in and adjacent to the main channel of Pond Creek, a tributary of the Blackwater River near Pensacola. They may possibly be found in reaches of the Yellow River. This floodplain habitat is now threatened by rapid urbanization and land development within its drainage. Although the distribution of blackmouth shiners was once exclusive to these northwestern Florida sites, the blackmouth shiner has now been observed outside of Florida.

Naturalists believe that forty fish species are rare.

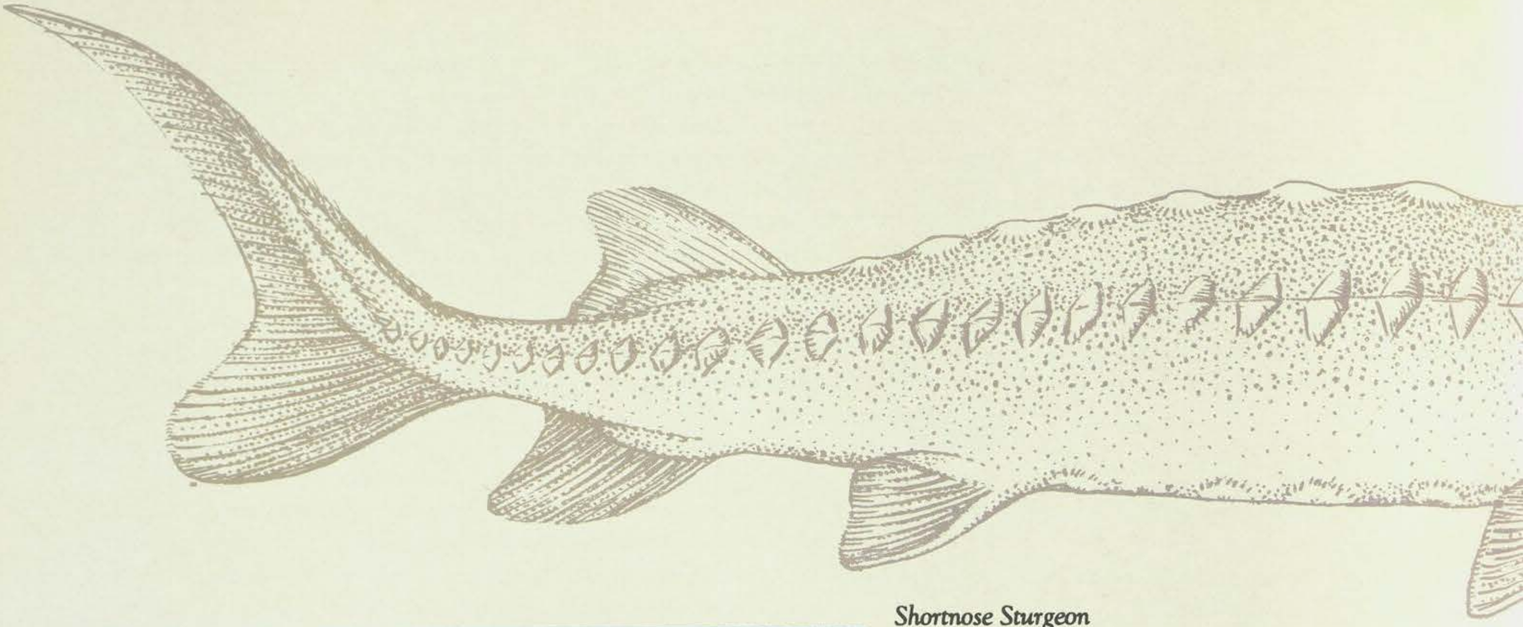
Okaloosa darters inhabit only a few small streams emptying into Choctawhatchee Bay. Fortunately, large portions of these watersheds are shielded from development by inclusion in Eglin Air Force Base. Okaloosa darters apparently face extinction through competition from another darter, the brown darter. Scientists do not know whether brown darters invaded these streams naturally or were introduced by man, possibly as bait-fish releases.

Causes of rarity or threats to existence are diverse and often interrelated. Long ago, geologically speaking, peninsular Florida was repeatedly flooded by the sea, eliminating most freshwater fishes. Freshwater fish have subsequently reinvaded Florida from the continental landmass to the north. Even today, however, Florida does not possess nearly as many species of freshwater fish as the mainland of the United States. Consequently, many fishes are rare in Florida because this is the eastern or southern limit of their range. The goldstripe darter, harlequin darter, cypress darter and speckled chub are examples of such peripheral species. Others have been reduced in range or population by pollution, habitat destruction, natural competition or overfishing. Populations of Atlantic sturgeon have been drastically diminished by a combination of commercial and recreational overharvest and construction of dams across rivers used for reproduction.

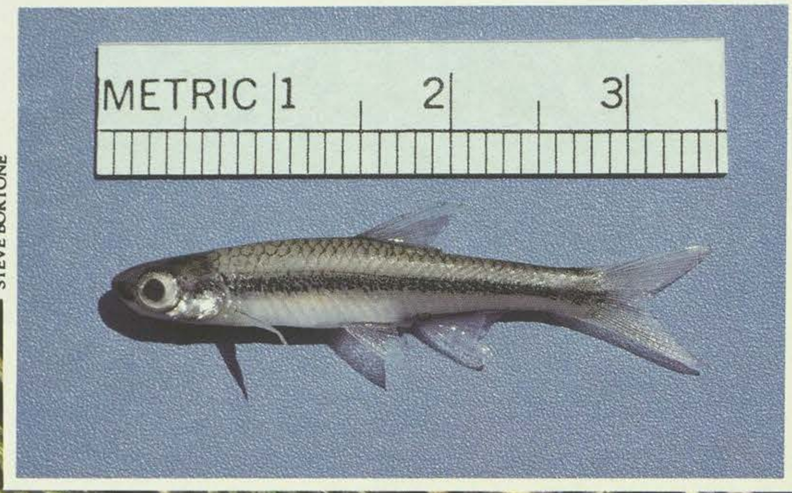
Why should we be concerned with the extinction of fishes we rarely, if ever, see? Fishery scientists learn a great deal about water and habitat quality from the variety of fish that occur at a particular site. Since different species respond to environmental factors in different ways, the abundance or rareness of certain species gives an indication of which ▷

PHOTOGRAPH BY WILLIAM ROSTON (pg. 10)
PHOTOGRAPH BY GEORGE H. BURGESS (pg. 11)

Suwannee Bass



Shortnose Sturgeon

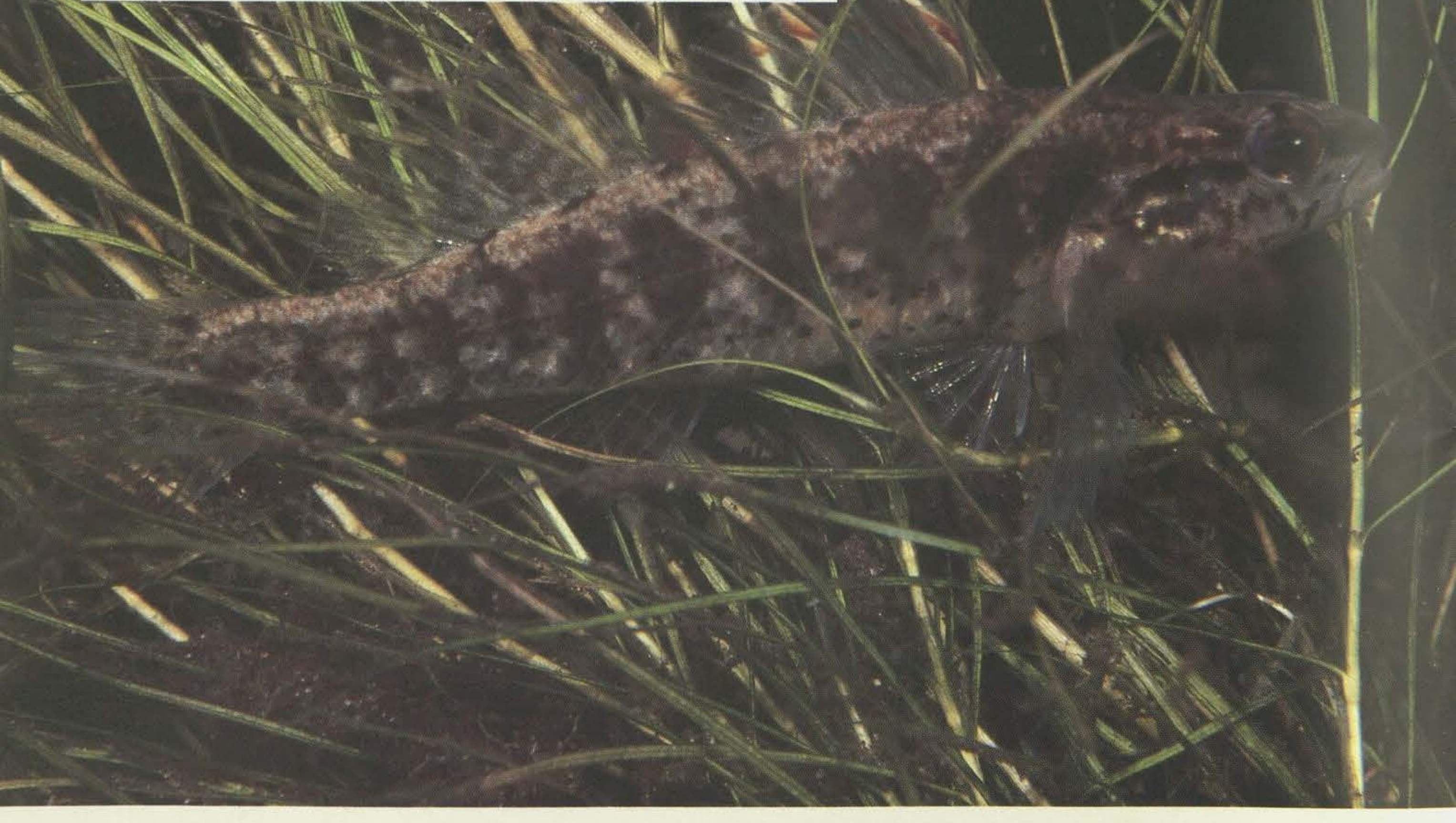


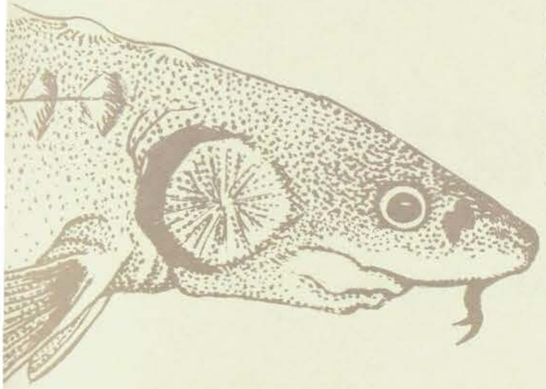
STEVE BORTONE

Blackmouth Shiner

Okaloosa Darter

WILLIAM ROSTON





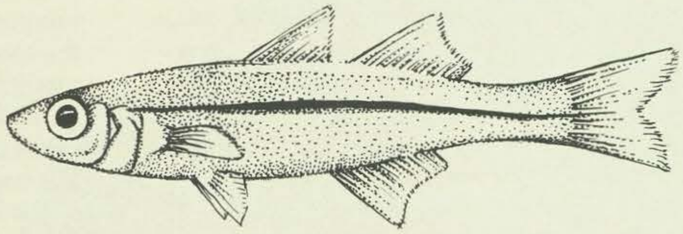
environmental factors are most strongly affecting the site. Fish are dependent upon water quality, fish-food organisms and habitat quality. Pollution may eliminate or reduce the kinds and abundance of aquatic insects and other food items. We can measure these disturbances readily by analyzing the abundance and species composition of fish. For example, if all insect-feeding species of fish are absent and only omnivorous species remain something has obviously disrupted the normal food-chain. A variety of minnows, darters, suckers and sunfishes is expected in healthy streams. To list a case history, a creek near Pensacola receives industrial effluent. Few, if any, minnows (other than non-native carp), darters or suckers are now collected from this stream, providing clear evidence of severe ecological disturbance.

By now, Leroy and Oscar are pointing to the brilliant blue noses and expansive black fins of minnows cautiously circling below them. Aptly named, the rare bluenose shiners are probably the most attractive of Florida freshwater fishes. With a discontinuous range that stretches across northern Florida to the St. Johns River system, this beautiful minnow is hard to find although it has been observed in dark, deep creek pools, floodplain swamps and clear spring runs. Very little is known of its life history. Unlike most minnows, much of its range is within Florida.

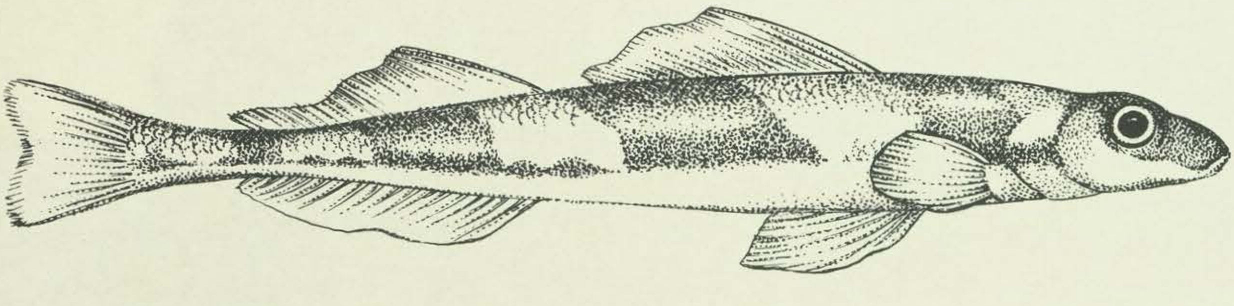
Why is such a pretty fish so rare and hard to find, even though it occupies a wide variety of habitats? What is its value to us? Who cares, besides Leroy and Oscar as they hear the train whistle and hastily evade the approaching P & N by scrambling down the granite ballast slope? Tomorrow they will return with a purloined flour sieve and a large Mason jar. By then, if their luck is like mine, the bluenose will be gone.

Gray Bass is the director of the Commission's Blackwater Research and Development Center in Holt.

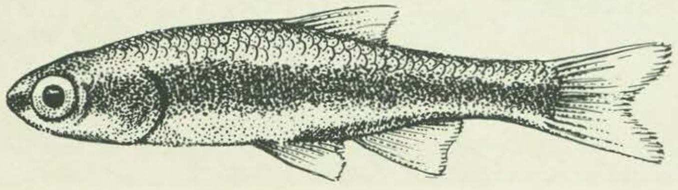
ILLUSTRATIONS BY PEGGY PERKERSON



Key Silverside



Crystal Darter



Dusky Shiner

Get Ready For Peacock Bass

Beginning July 1st, Butterfly Bass Are Keepers

By Lt. Jim Huffstodt

Not too many years ago the only sportsmen who knew the thrill and challenge of peacock bass fishing were the wealthy. Affluent sportsmen flew into the far reaches of South America searching out these flamboyant fighters.

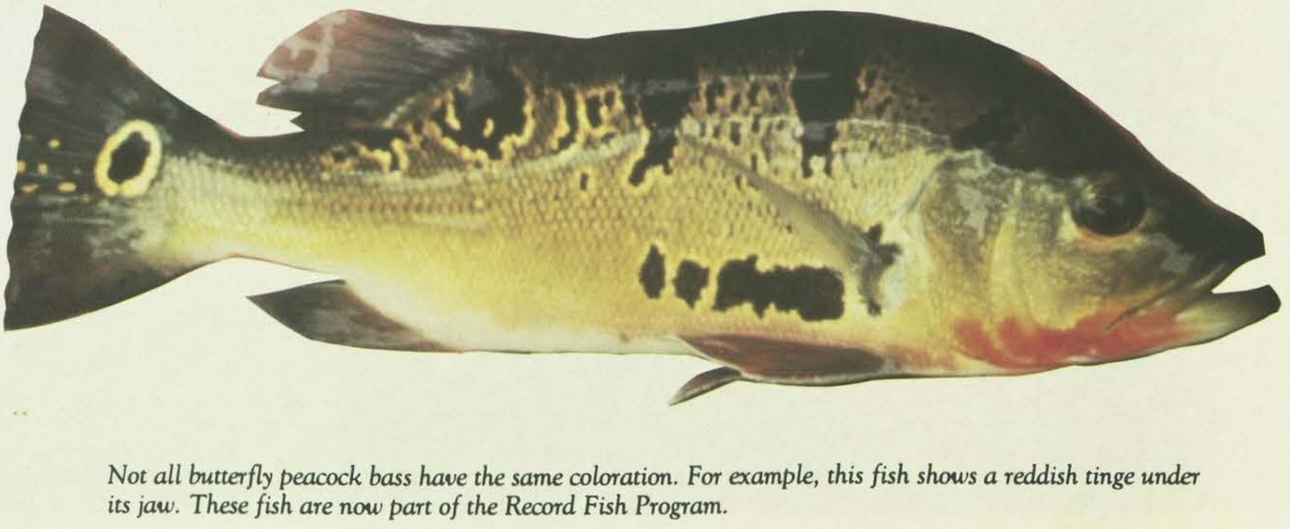
Today, that angling privilege belongs to anyone in the Dade County area who has a couple of lures or a bucket of shiners and a few dollars for a fishing license. And, as of July 1, lucky anglers can take home up to two butterfly peacock bass but only one can exceed 17 inches. This rule is designed to protect larger peacock bass.

This is a significant benchmark in a ten-year program that has ignited interest across the state and nation. The Florida Game and Fresh Water Fish Commission has enhanced recreational fishing opportunities in the state's southern canal system by bringing a world-class sport fish right to Miami's doorstep.

Stocking an exotic species runs counter to conventional fisheries logic, and for good reason. Through the years, the deliberate or inadvertent introduction of foreign fish has — with some exceptions — disrupted native populations and wreaked havoc with nature's delicate balance.

Sensitive to that fact, the Commission devoted years to exploring the possible negative impacts of stocking peacock bass. Staff at the Commission's Non-Native Fish Research Laboratory in Boca Raton, with guidance from director Paul Shafland, invested long hours in thought and experimentation before recommending this departure from the norm. The warm coastal canal system running throughout Miami and other communities in Dade, Broward and Palm Beach counties was long ago invaded by several successful exotic fishes — including the spotted tilapia. This African native fish thrives and enjoys a decided advantage over Florida native sport fish, since the tilapia aggressively guards its young.

The Dade County canal system was the worst example of tilapia invasion. Several years ago Commission surveys documented



Not all butterfly peacock bass have the same coloration. For example, this fish shows a reddish tinge under its jaw. These fish are now part of the Record Fish Program.

that 25 percent of the fish poundage and numbers within the canal system consisted of spotted tilapia.

"Not only did these fish compete with native species for space, largemouth bass couldn't control the exploding population. Nor could sport fishermen, as tilapia aren't readily caught with rods and reels, thus relatively few become table fare," said Shafland.

Accepting the fact that spotted tilapia were here to stay, the Commission's fishery research staff investigated various management alternatives that could enhance the value of this abundant but under-utilized resource. One alternative involved the use of introduced predators that would ▷

PHOTOGRAPHS BY PAUL L. SHAFLAND

use spotted tilapia as food. As time went on, Shafland became convinced that peacock bass might be a possible antidote to the tilapia's growing population. The South American native could thrive in the warm canals and grow large and numerous on a tilapia diet. Also, introducing the peacock bass, a fighting game fish, might just transform the situation from a negative to a positive.

Shafland and other experts in the Division of Fisheries knew that, in the complex world of fisheries management, today's brilliant solution can have a nasty habit of becoming tomorrow's problem. The challenge was to investigate any and all possible implications before releasing the first peacock bass fingerling into Florida waters.

Exhaustive research was essential. Shafland studied the scientific literature on the subject and reviewed a 1960s Commission effort to stock peacock bass in ponds along the Florida Turnpike. That program had failed, as had an effort by Texas fishery biologists to stock peacock in man-made lakes.

Hawaii was a different story. There, a peacock bass stocking program had proven phenomenally successful without adversely affecting native fish species. By comparing past successes and failures with the southeastern Florida situation, biologists were able to improve the chances of success.

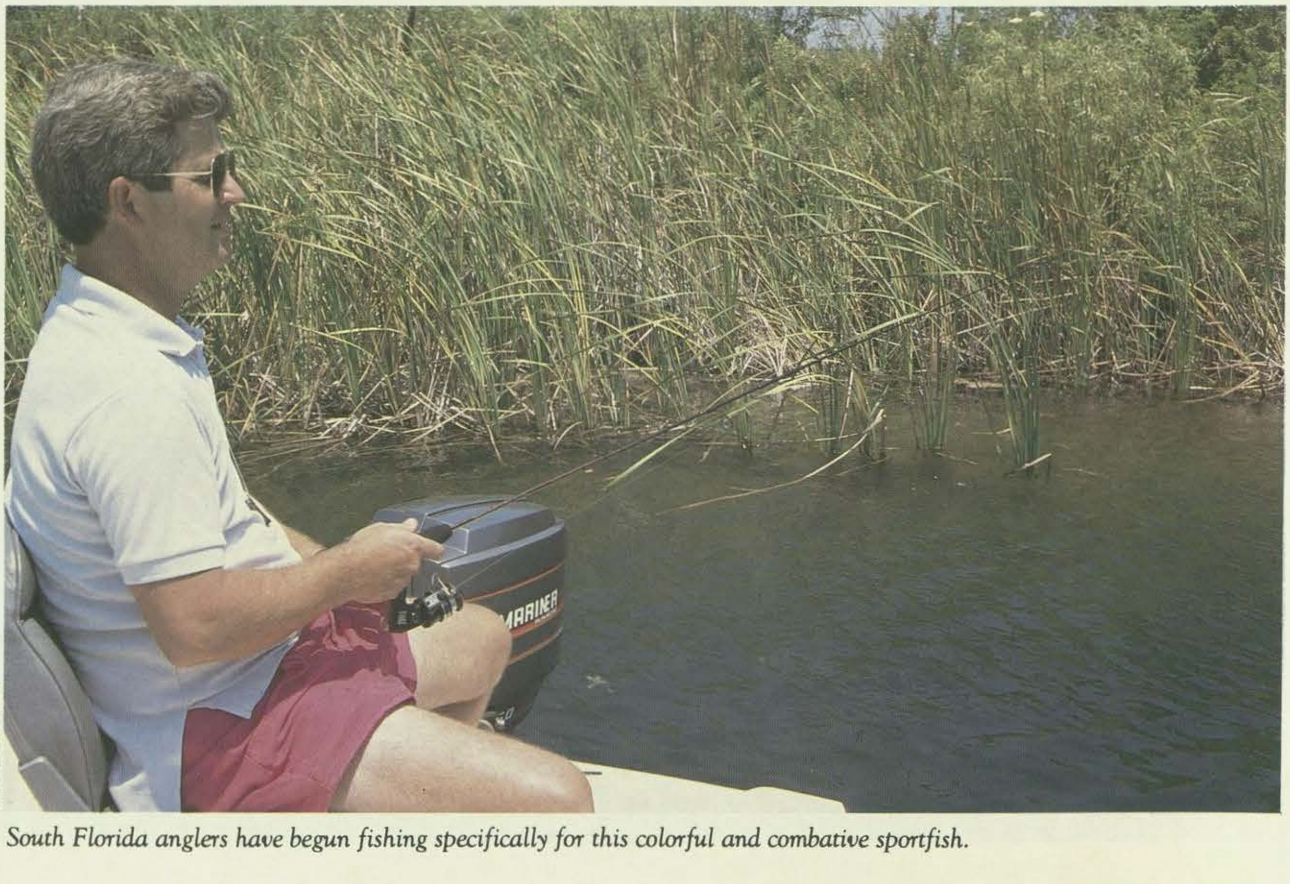
GFC

Invasion by the exotic tilapia led to the introduction of peacock bass.

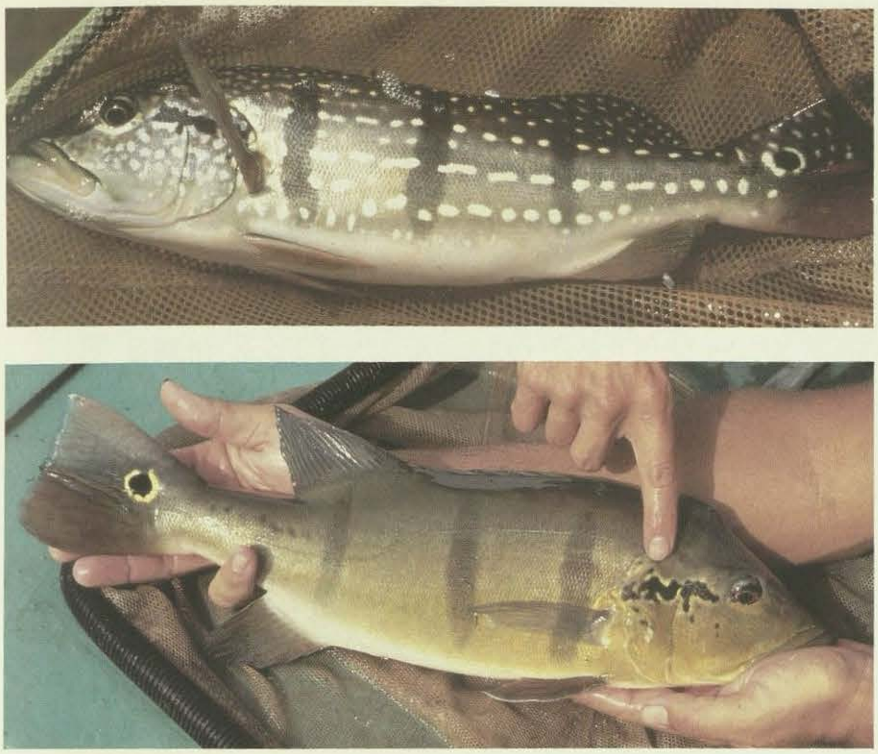
Facts provided by extensive experimentation here in Florida confirmed the initial research. Using fish from Guyana, Brazil and Peru, Shafland's lab crew initiated a wide range of tests. They ran a salinity test to insure that the peacocks wouldn't move out into the coastal shallows and possibly affect saltwater fish resources. And, the U.S. Fish and Wildlife Service provided important assistance in examining peacock bass for potentially dangerous non-native parasites.

Without a doubt, the most important question revolved around whether temperature would limit peacock bass distribution to the areas where tilapia provided a food source. Every indicator pointed to the fact that peacocks, because of their inability to survive cool, winter weather, would never expand significantly inland or farther north than these coastal southeastern Florida canals. But the Commission wanted proof.

Lab tests at Boca coupled with field temperature tests carried out at dozens of sites provided insight. The effort proved peacocks couldn't survive a winter in the saw grass marsh of the Everglades or in most canals farther north than the West Palm Beach/Pompano Beach area. "In fact, peacock bass are less


JIM HUFFSTODT

South Florida anglers have begun fishing specifically for this colorful and combative sportfish.



PAUL L. SHAFLAND

These shots illustrate the two color-phases of the speckled peacock bass. Note the opercular patches on the gill. This fish must be released when caught.

tolerant of low water temperatures than any of the many fish species that have been tested by Commission personnel. Peacocks thrive at 75 degrees Fahrenheit and above," Shafland said. "They suffer at anything under 68 degrees, and die once the mercury plunges to 60 degrees or below."

"Cold water tests documented that we could contain the peacocks in areas where they could be a benefit by feeding on spotted tilapia," Shafland continued. "Once tolerance tests were completed, we were assured that peacocks couldn't infiltrate into large areas of the state where their presence might be detrimental," Shafland explained.

Increasingly, the peacock bass looked like a prime candidate for introduction, but nothing was left to chance — the stakes were simply too high. A written proposal describing the planned introduction of peacock bass was distributed to many leading fisheries experts, and the overwhelming majority of responses were favorable.

Only then did the Commission act. Between 1984 and 1986, 20,000 butterfly peacock bass were stocked in Dade County canals. Butterfly peacocks normally begin reproducing within twelve months. As hoped, the new immigrants to Florida's canals flourished. Several years ago the population had reached the point where area anglers began fishing specifically for this colorful and combative sportfish.

Catch-and-release has been the by-word, Shafland said. "Our local fishing clubs were very cooperative. Of course, human nature being what it is, there were some who couldn't wait. We've managed to protect the new resource during its early stages by aggressive law enforcement and public education."

A few weeks ago a Commission electro-shock survey brought up a 6 ¾ pound butterfly peacock bass that was weighed and released unharmed. It was one more piece of evidence that the program was on target. Further confirmation came from local tackle shop owners like those at The Fishing Line and Phil's Bait and Tackle. They, and others in Dade County, are swamped with questions about the best baits and lures to entice these feisty battlers from south of the border.

Anglers have been taking butterfly peacocks with regularity in the one- to two-pound range, although the species can weigh up to 10 pounds. Peacocks can be caught as far south as the C-103 canal near Homestead all the way north to Snake Creek Canal which parallels the Dade and Broward County border. Two other productive peacock fishing spots include Bel-Aire Canal (C-100 series) and Black Creek Canal (C-1) system in southern Dade County.

Shafland also reports that another excellent fishing spot is the Airport Lakes, near Miami's International Airport. A ramp at the east end of the main lake provides access for small boats. These lakes are part of the Tamiami (C-4) Canal system. Boat access to Snapper Creek (C-2) peacocks is provided by a ramp near the junction of Snapper Creek Drive and S.W. 99th Avenue. "These ramps aren't in ideal condition, so be careful when using them," warned Shafland.

Getting there is one thing, catching fish is another. Not to worry. Try free-lining shiners with six-to eight-pound test line. The peacocks will gobble them up and practically set the hook themselves. Now, if challenge is your game, try a minnow imitator. The Rapala floaters and divers are as good as any. Also give an ivory-colored Pop-R, Hot Lips, Speed-Trap or Mirrolure a try, as well as some of the Florida-produced lures by Bagley, Griffin and L & S Baits. ▷

JIM HUFFSTODT

As of July 1, anglers can keep up to two butterfly peacock bass but only one can exceed 17 inches.

"And, if you love to fly fish, welcome to good times in south Florida. The experts claim peacocks rise to the fly without hesitation. A streamer, small epoxy minnow, or zonker is effective," claims Shafland.

"I'm convinced the anglers will discover the best methods for taking these fish," Shafland said. "What has worked elsewhere on peacock bass may not prove effective in south Florida. The determined, serious angler will proceed by trial and error until he finds the best technique and bait — artificial or natural. Experience will be the greatest teacher."

After taking a peacock bass fishing trip, let me pass on the word. You're going to love these fish. They fight like a largemouth bass, or even better. Right now the key is not to go overboard just because it's legal to keep a couple. The conservationist angler should still practice restraint.

"This wasn't intended as a meat fishery," Shafland said. "Overharvesting could still kill the fish that laid the golden egg. That's why we will continue encouraging the catch-and-release philosophy. Somewhere down the line, you could enjoy catching him again or he could blossom into a trophy fish worth hanging on your wall. Think of the fun landing a monster like that!"

Speaking of monsters, let's discuss the speckled peacock bass that have also been stocked in Dade County canals. This species remains legally protected. Shafland sees them as a very valuable recreational resource for the future. "It will always be a limited fishery, but one that will appeal to the serious angler. The butterfly peacocks should top out at around 10 pounds; the speckled peacock may reach anywhere from 25 to 30 pounds. A fish that size, with that kind of heart, will be a stern test for the most experienced and knowledgeable sport fisherman."

Patience is the byword. Unlike the butterfly, the speckled peacock won't reproduce until three years old and aren't expected to become as abundant as the butterfly. In compensation, these fish can become true freshwater heavyweights. Shafland anticipates that, with cooperation from the public, the speckled peacock fishery could develop within the next five to ten years.

Telling the butterfly peacock from the speckled peacock shouldn't be a problem. The key is to check the gill plates for black blotches. That identifies the fish as a speckled peacock. The butterfly gill plates don't have these large, dark blotches. Speckled peacocks less than 10 pounds may have 4-6 prominent, ivory-colored, broken lines that run lengthwise from their head to the base of their tail. When the fish grow larger they lose this pattern in exchange for three vertical black bars on a golden background. Both peacock bass species have the distinctive yellow circle around a black spot at the tail base. Another exotic common in south Florida, the oscar, has an orange circle at the tail base.

Interested? Why not plan a July fishing trip? That's when you won't have to win the lottery to live like a millionaire. Just visit a south Florida coastal canal, and fish for peacock bass. You'll share the same adventure that lures wealthy sportsmen every year to the South American jungle rivers in search of world-class sport fishing.

Lt. Jim Huffstodt is the public information specialist in the Commission's Everglades Regional office.

Build Your Own Bird Garden

Photographs and Text by Susan Cerulean

If you are one of the thousands of Floridians who enjoys feeding and watching birds, consider adding a bird viewing garden, or bird window, to your home.

For people who love wildlife, bird windows are a pleasant way to watch and learn even more. Bird window owners report long lists of feeder visitors — from pine siskins and pileated woodpeckers to redstarts and solitary vireos, and even an occasional bat. But the thrill is not so much in "listing" as in creating a lovely piece of habitat — and then watching the animals go about their daily business in full view of your comfortable indoor seat.

Why are bird windows so attractive to animals? "Most every living thing is looking for the easiest way out, the softest bed," laughs Betty Komarek of Birdsong Nature Center. "A really successful bird window offers a succession of berries, nuts and insects throughout the year, a source of water, surrounding habitat for shelter and nesting, and usually supplemental food. It's irresistible to wildlife."

As you will see, each of the bird window gardens described here reflects the individual interests of its designer. Take this tour of three north Florida and south Georgia bird windows and get some ideas for your own.

Birdsong Nature Center

During thirty-five years living at Birdsong Nature Center near Thomasville, Georgia, Betty Komarek and her husband Ed have welcomed thousands of people to the 15 by 18 foot viewing room in the center of their home, including school classes, garden clubs, and renowned ornithologists and bird photographers.

"A bird window, unlike a feeding station, should be beautiful," says Komarek. She infuses her bird window designs with her understanding of Japanese gardening and her own spiritual philosophy of life. Well-designed bird window gardens offer both an intriguing vista and a sense of privacy. The view from Komarek's window seems cozily enclosed by framing shrubbery and rock. Against this stage, hundreds of birds and small animals feed and bathe during a typical day. But the watcher also glimpses the fields and fence rows down two winding paths.

Betty Komarek began creating her bird window more than thirty years ago. A bare chicken yard with only a single tree—a crepe myrtle—was the site of her present garden.

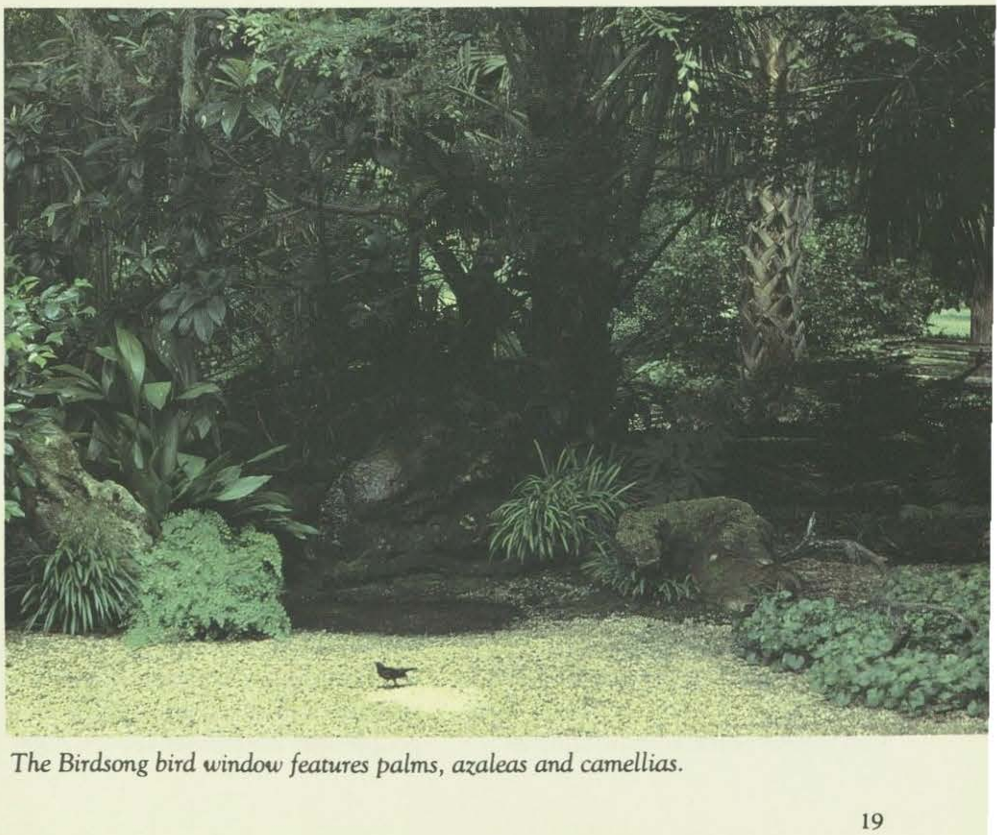
Informal teaching is Komarek's life work, and the bird window has been an invaluable aid.

"Facts don't move you or make you grow," says Komarek. "I've found that the window is the best way to teach birds to a group. It's fun, and all learning needs to be fun." Komarek also believes people, both children and adults, need to have hands-on experience with wild things to gain love and appreciation for them.

Komarek has grown more excited about teaching adults through her bird window and nature center over the years. "Garden club members do things," she declares. "We just don't have the space for all the school children, so we're working with their teachers at Birdsong now."

Native Nurseries

"Aesthetics are what make a bird window different from a feeding station," explains Jody Walthall, co-owner of Native Nurseries in Tallahassee. "You're basically concentrating food, water and cover in a way that's close up and pleasing to the human eye. But the birds couldn't care less what it looks like!" ▷



The Birdsong bird window features palms, azaleas and camellias.

Windows designed by Native Nurseries are usually in wooded, isolated locations, so only a few large plants need to be added. Unlike other landscape projects, Jody Walthall designs his bird-viewing gardens on site. He finds that placing the smaller plants and the rocks is much like flower arranging and can't be done at a drawing board.

The window at the Native Nurseries store is framed by two large water oaks about twenty feet apart. A fifteen foot wax myrtle, a needle palm and fast-growing Florida leucothoe were planted to provide an understory beneath the oaks and a backdrop to the feeding area. Walthall added smaller, fruit-bearing shrubs for additional cover and the berries that birds love.

"We've designed about ten bird windows in the Tallahassee area, including the one here at the nursery and our own at home," says Walthall. "Some of our customers prefer a more formal design, some more naturalistic — but each is very personal."

Julie and Leon Neel Residence

Julie and Leon Neel manage 800 acres of land near Thomasville, Georgia. In 1972, they designed and built their home around a bird window site they wanted to view from their bedroom window.

Leon Neel is a professional wildlife manager who has worked for years on the large plantations that sprawl over the Florida-Georgia border. Julie Neel has worked for many years on behalf of butterfly conservation in Georgia through the garden clubs and the Day Butterfly Center at Callaway Gardens. Although the Neels work hard for wildlife, their bird window is a private family retreat.

The Neel's 8 by 8 foot bird window dominates the master bedroom of her home with a spectacular view. The Neel's sole expense in creating the garden was $100 worth of cement poured to create a meandering pool. The water is very shallow, only an inch or so at its deepest point, so butterflies as well as birds can benefit. There's even a wallow an armadillo regularly uses behind the rocks.

The Neels attract butterflies with showy annual flowers and woodpeckers with standing dead wood.

Julie Neel's special interest in butterflies is reflected in her choice of plants for her window. Woodland phlox, impatiens, clerodendron, and butterfly lily are just a few of the nectar sources she's planted, along with wild canna for skipper larvae, and native violets for the larval stage of the spring azure butterfly.

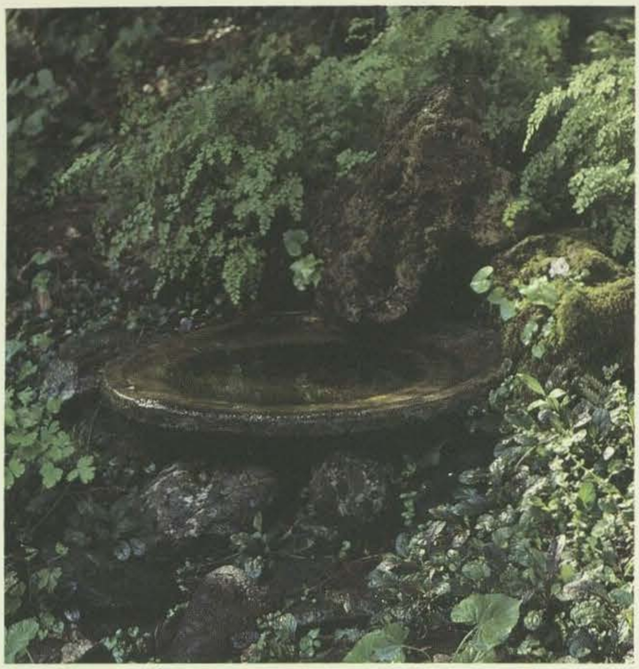
Site Selection

Bird window gardens should be situated outside a window where the family spends most of its time, but preferably away from active yard traffic. Dining rooms, living rooms and screen porches are common selections. Walthall suggests that people who are serious about a top-quality viewing experience should consider knocking out part of a wall and installing a really good-sized piece of glass. "A good window width is six feet, and an eight foot view is ideal," advises Walthall.

The window should extend to the floor if possible, so you don't need to stand to see your garden. Don't use one way or mirrored glass, since it will substantially cut down on your view. Songbirds quickly become accustomed to movement inside the house. Screen porches are good vantage points for bird window gardens and seem to act as even better "blinds" than glass windows.

Plantings outside a low window can integrate the garden with the home and bring the feeling of the outdoors even closer. If your bird garden is fifteen to thirty feet from your window, you may want to bring the birds even closer by

Ferns and grapevines grace this shady bird garden.



An inviting bird bath has shallow, sloping sides and is free of algae.

hanging a satellite seed feeder or a hummingbird feeder from the roof edge. For further enticement, Komarek has a bamboo, gutter-like feeder that runs along the bottom of her window. Walthall places a handful of sunflower hearts on his window ledge during family meals. Plant a good perching tree or shrub-like stiff cornel dogwood just outside the window to keep the birds just inches away while they crack a seed or briefly rest.

Window viewing areas are often set off by a mulch, such as pine straw or bark, pea gravel or lawn grass.

Plant Materials

What kind of plant material should you use to create a successful bird garden? Komarek puts it simply: "Decide what animals or birds you want and plant or provide the things they need." Native species that animals use for food or shelter should always predominate. Consult *Planting a Refuge for Wildlife*, available free from the Florida Game and Fresh Water Fish Commission, for a complete listing of trees, shrubs and vines for north, central and south Florida.

Like the Japanese, Komarek uses mostly broadleaf and needle evergreen species to lend a sense of permanence and continuity to her garden, while Walthall uses a variety of herbaceous plants and ferns to complete his window gardens. Julie Neel advises that if you grow just one plant for the birds, transplant in a wild pokeweed. The Neels have watched many fall migrants and even woodpeckers dine on the ripe berries.

Water

A small pond or basin is a critical element in a bird window garden. Misting or dripping water from a hidden nozzle attracts birds that might otherwise overlook the bath. Water sources are especially useful if you'd like to attract migrant songbirds, including vireos, warblers, tanagers and orioles that normally stay in the forest canopy. Many bird window designs feature an interesting dead branch above the pool for the forest canopy dwellers to perch on while they bathe in the misty droplets.

Komarek's shallow pool was lined with 4 inches of packed red Georgia clay and filled with ½ inch of pea gravel. A hidden mist nozzle sprays water vertically into overhanging tree branches and then into the pool, which gradually fills during the daylight hours. The water seeps out through the clay at night, eliminating an algae buildup. Native Nurseries often uses a similar pool design, but Jody Walthall notes that homeowners who work all day and don't want to leave a mister running should either buy a timer or choose another watering method. Cement bird bath bowls easily hold a day's supply and so do small pools lined with cement or a commercial liner. Walthall cautions against fiberglass molded pools which are usually too deep for songbirds.

Supplemental Food

For education or consistent, up close viewing opportunities, you'll need to use supplemental feeders. Sunflower seed, millet, finely cracked corn and thistle seed can be placed on stumps or in squirrel-proof feeders on poles or suspended from tree limbs. Walthall excavates small cavities in cypress knees or sections of a hardwood trunk to hold a suet-cornmeal-peanut butter mixture. Many birds uncommon at feeding stations will visit suet, including woodpeckers, thrashers, some warblers and nuthatches.

Komarek's understanding of what animals like to eat goes far beyond birdseed. She puts out fruit for the ▷

orioles and tanagers, old blueberries for seven-lined skinks and suet for hummingbird feeders," she smiles, and sometimes she uses an insect net to sweep grasshoppers from the fields for the tiny reptiles.

Bird Window Management

Managing bird windows usually begins with a plan to handle gluttonous squirrels. Unless you are willing to double or triple your feed bill, you need to figure out how you will exclude them. Squirrel proof feeders sometimes work. Rural landowners occasionally harvest their excess squirrels for a stew, but in town you'll need to outsmart or trap and remove them. In one garden, Betty Komarek placed her feed on large cypress knees in a small pool, just out of reach of the wily rodents.

Once bird window gardens are installed, owners report very little maintenance besides keeping the feeders stocked. Sunny spots will require some weeding. Cement or fiberglass water sources need regular cleaning to remove algae. Self-draining pools only need an occasional raking. The Neels prefer to let autumn leaves drift around their pool, and migrating water thrushes pick through the litter for tiny insects in full view of the window.

Cost

If you can haul your own rocks and stumps and have plenty of existing plants to work with, bird window installation will cost virtually nothing. However, a bird window designed and installed by a nursery or landscaper can easily cost five hundred to several thousand dollars.

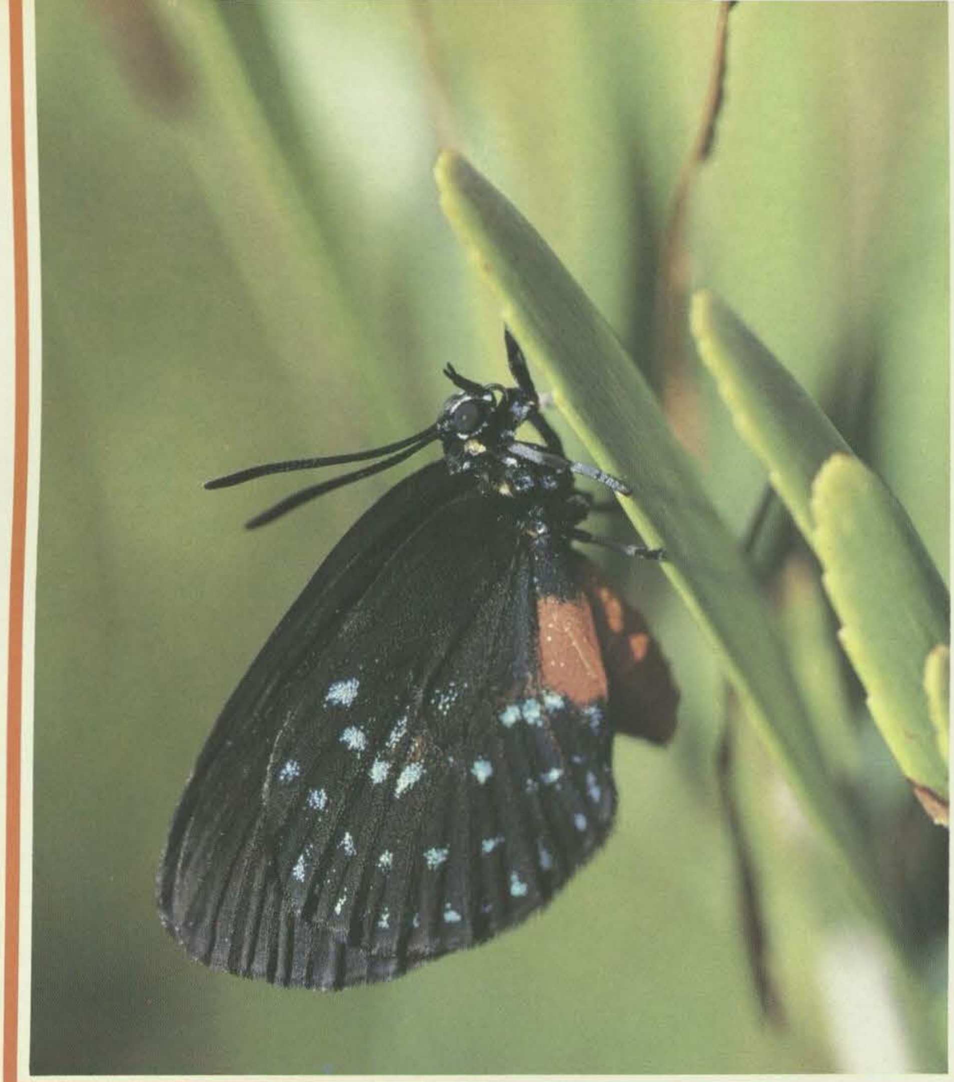
The cost of feeding birds can also vary widely. Feeding birds standard-quality seed alone at one feeder may cost around $100 a year, whereas feeding seed, suet, and fruit from multiple feeders may cost up to several hundred dollars each year. The Native Nurseries staff feed visiting birds all they can eat at their store window, about three dollars worth of suet each day, and about four hundred dollars worth of seed each year. Walthall estimates that a typical bird window owner in Tallahassee spends three or four hundred dollars a year at his store on suet and seed.

"At Native Nurseries we always enjoy the changing seasons at our bird window," says Jody Walthall. "The first goldfinches in the fall, the earliest hummingbird in March and the first pine warbler in winter."

Native Nurseries co-owner and wife Donna LeGare chimes in, "We used to bird and botanize and canoe nearly every weekend. With two small children at home, the bird window is the next best thing to being there."

Susan Cerulean is a biologist, and free-lance consultant who lives in Tallahassee.

A variety of annual flowers brighten this bird garden.



Florida's Rare Atala Butterfly

Text and Photographs By Rick Poley

Endemic to the southernmost areas of Florida, the Florida race of the atala butterfly (*Eumaeus atala florida*) was once thought to be extinct. Previously abundant in extreme south Florida, the striking Florida atala now exists only in several small colonies. The status of this rare Florida Lepidopteran is under federal review at this time.

The beautiful, medium-sized, black butterfly is characterized by a striking orange abdomen and wing patch as well as brilliant, iridescent blue spots on the hind wings. The atala is a weak flier and is easily recognized at a distance by its characteristically lazy flight. The atala caterpillars (larvae) are a deep, crimson red with two longitudinal rows of yellow spots. The atala larvae feed exclusively on the frond-like leaves of a native Florida cycad plant, the coontie (*Zamia florida*). The adult butterfly commonly feeds ▷

Hairstreak butterflies are identified by delicate lines on the undersides of their wings. Atalas are easily recognized by irridescent blue spots on the wings.

on the flowers of Spanish needles (*Bidens pilosa*) and saw palmetto (*Serenoa repens*).

The decline of the Florida atala and of the coontie have generally coincided with increasing land development pressures in south Florida. Land development in this region has resulted in the destruction of more than 90 percent of the original pine forests, the primary habitat for both coontie and the atala. Coontie plants are listed as threatened members of the cycad family. This status is also attributable to commercial exploitation and land development. Seminole Indians once prized the evergreen coontie because the plant's tuberous roots contain an edible starch. Later, as the state's population grew, commercial starch factories operating in Dade County and the Florida Keys depleted this native cycad.

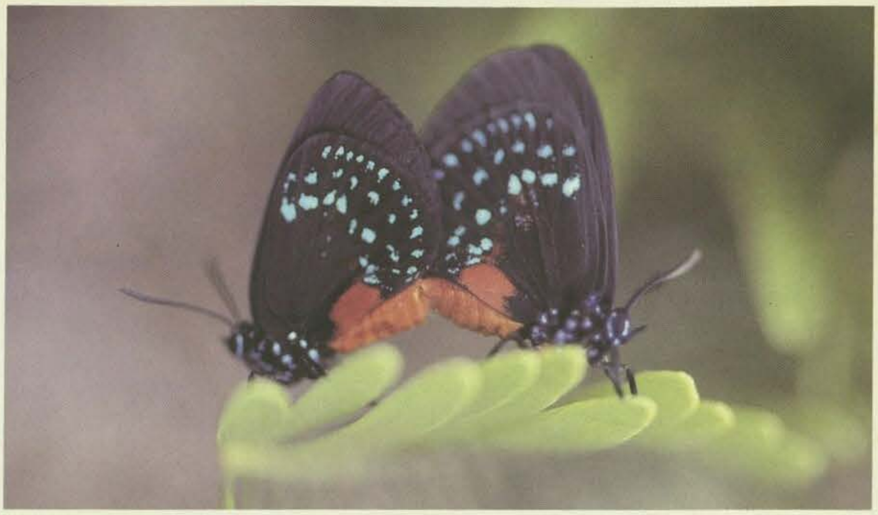
The Florida atala butterfly is a classic example of the decline of a species that depends on a specific plant that is itself being wiped out by habitat destruction. However, fires, hurricanes, competition with other species for food and other natural causes may also have contributed to the atala's dwindling numbers. As with most threatened Lepidoptera, the larval stage of the atala has evolved to a high degree of specialization. The brilliantly colored caterpillars feed exclusively on the leaves of the coontie plant.

The future of the Florida atala remains uncertain. The only major contiguous pineland communities remaining in south Florida are within the boundaries of the Everglades National Park — only small, remnant stands of slash pine remain outside park boundaries. However, the coontie is not found in all these pine forests. Consequently, the protection of slash pine communities containing the coontie is essential to the survival of the atala.

The Department of Environmental Resource Management (DERM), the local environmental regulatory agency in Dade County, enforces a comprehensive tree protection program within Dade County. DERM now requires preservation of pineland forest communities and also encourages the use of plants native to the south Florida region in landscaping. The use of coontie in gardens at several Metrorail Stations (Dade County's rapid transit system) has attracted Florida atala butterflies. The full reproductive cycle of the atala has been documented at one station.

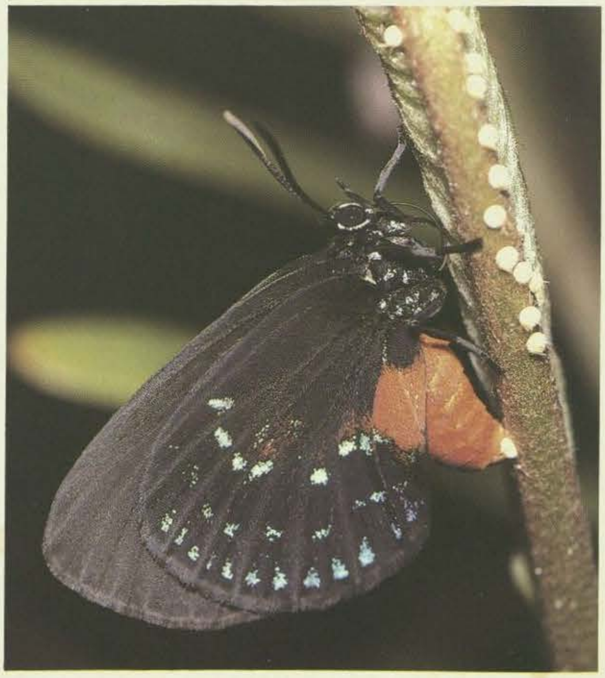
Perhaps preservation of the remaining pineland forests and the use of coontie in urban landscaping will ensure the future of the Florida atala. But, significant reductions in the atala population have made this species even more vulnerable to natural dangers. Consequently, there is serious concern for the continued survival of this butterfly. Through prudent land-use decisions and re-creation of atala habitat in urban settings, perhaps we can safeguard the future of one of Florida's most beautiful butterflies. ▷

Rick Poley is employed by the Dade County Department of Environmental Resource Management where his primary responsibilities are in assessing environmental impacts of proposed developments. As a free-lance writer and photographer, he specializes in images of our natural world, outdoor recreation and Florida's environment.



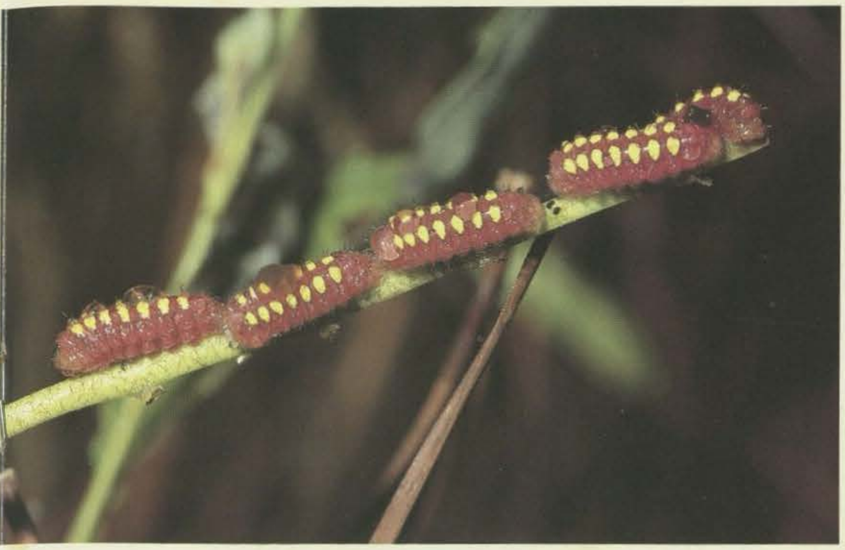
(Above)

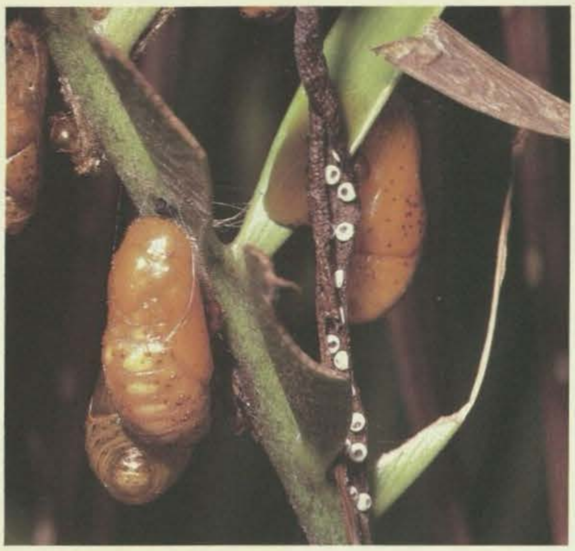
Two atalas mating; the pair may remain together for several hours. The future of the Florida atala depends on the availablility of the larvae's host plant, coontie.

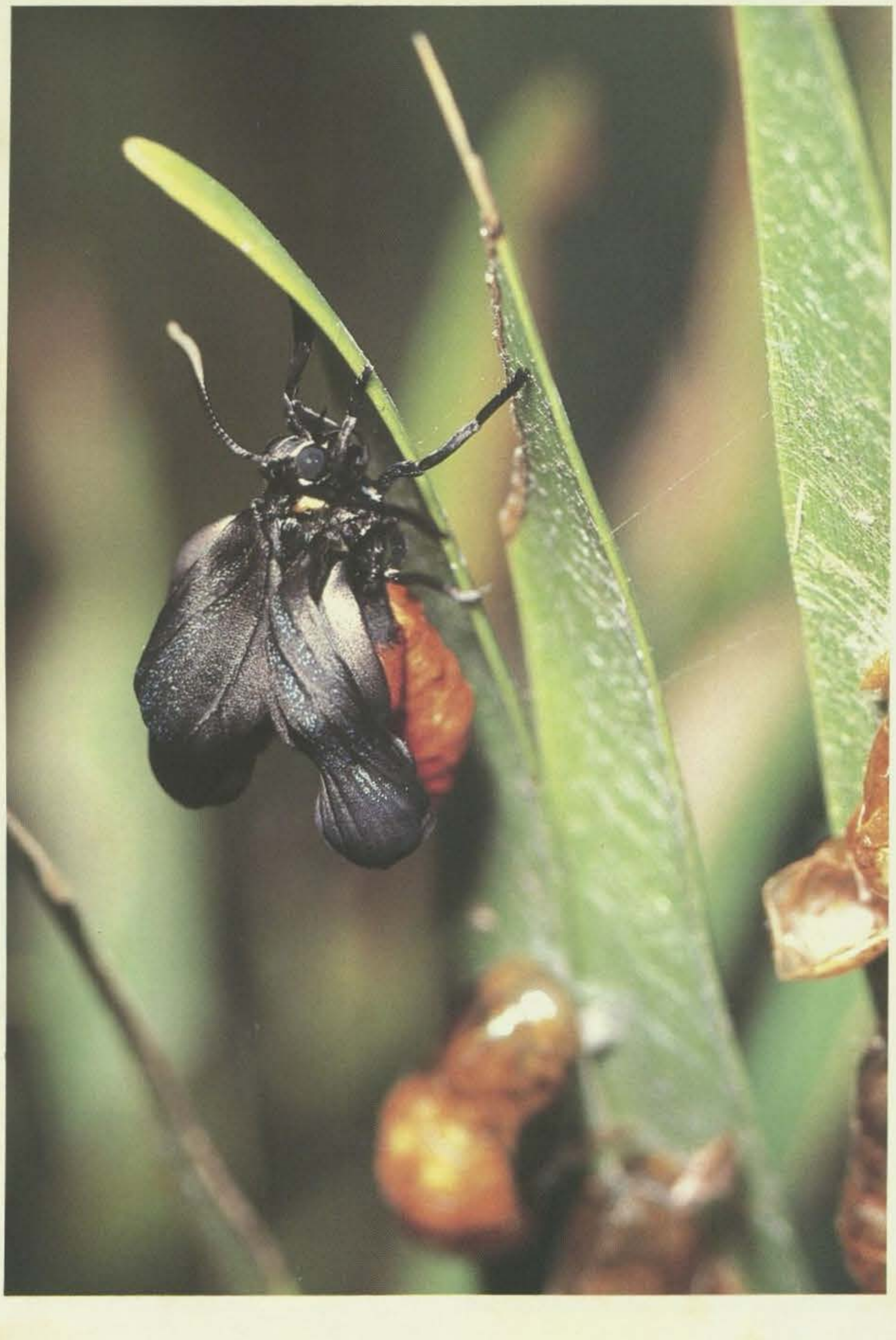


(Right)

The female atala lays eggs on the tender, new shoots of the coontie. The eggs are creamy-white, about the size of a pinhead. The female often lays many eggs at the same location on the plant. By the time the eggs hatch, the new leaf is fully grown and provides a readily available supply of food.



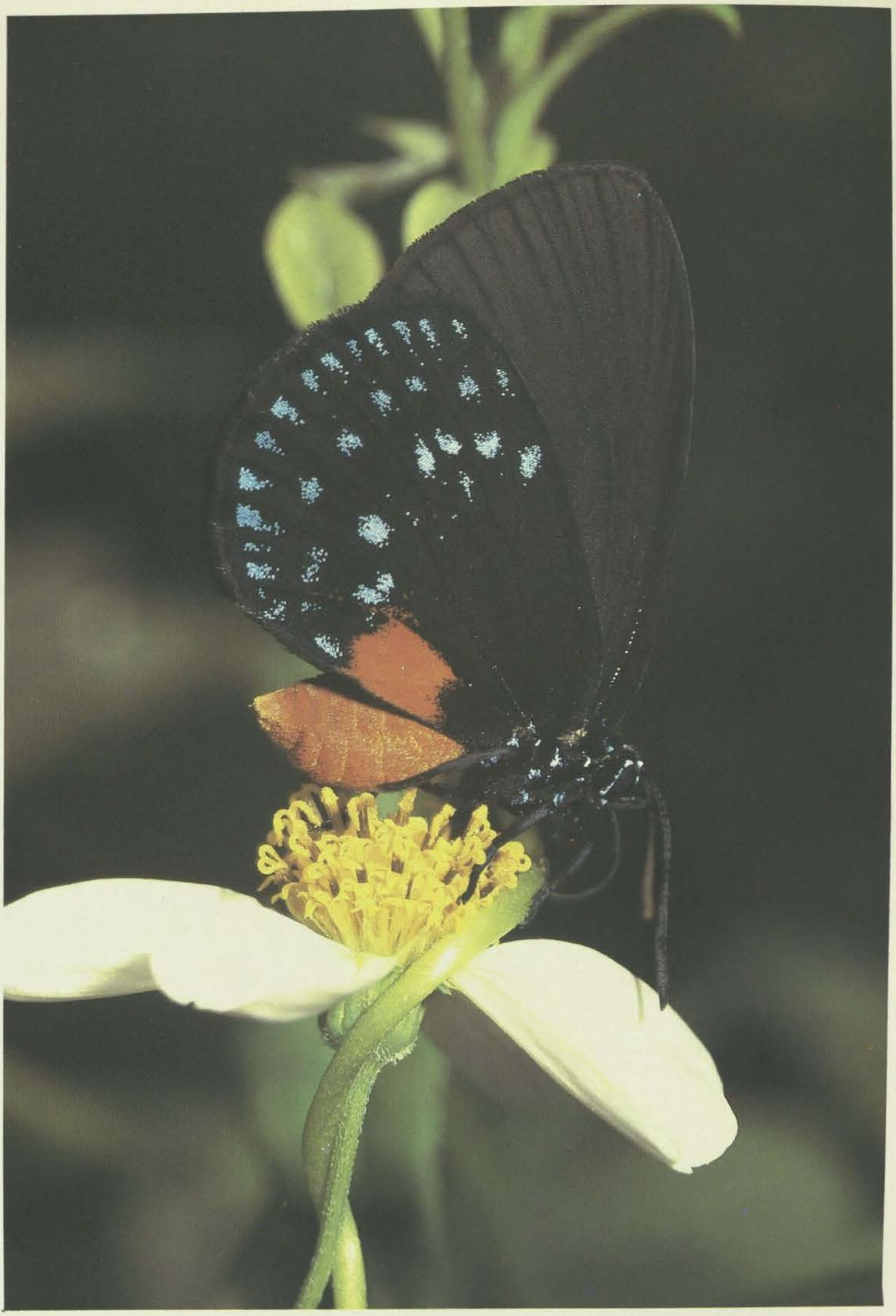




Atala larvae are crimson red with a pair of longitudinal rows of yellow spots; they are approximately one inch long. The larvae feed exclusively on the leaves of the coontie and a group can completely defoliate a plant, leaving only the central branch untouched. Atala caterpillars are distasteful to predators because of the toxic chemicals they consume from the coontie.

The metamorphosing caterpillar is visible within the chrysalis. In the initial stage, the developing atala clearly resembles the larva. However, in the final stages of metamorphosis, the black-winged adult with its orange abdomen is clearly evident.

Though the adult atala emerges quickly from the chrysalis, its wings are still curled and it is incapable of flight. Within an hour, though, the atala's wings are completely unfolded and dried. ▷



The adult atala is a medium-sized, black butterfly with a striking, orange abdomen and blue, irridescent spots on its hind wings. Its lazy flight is easy to recognize. Adult atalas commonly feed on the flowers of the saw palmetto and Spanish needles.

Both the atala and the coontie, the larvae's host plant, are declining in numbers as their primary habitat, slash pine forest, is cleared for human habitation.

BUTTERFLY WORLD

Photographs and Text By James L. Castner

There are over 60 butterfly "houses," or living butterfly exhibitions, in the world. They are found in Taiwan, Australia, and Scotland, although the majority are located in Great Britain. Until recently, the United States has been conspicuously devoid of any large-scale, living insect displays. The best exhibitions available to U.S. entomophiles were the insect zoos at the Smithsonian Institution and the Cincinnati Zoo. However, this has changed thanks to the efforts of Ron Boender, creator of Butterfly World, the first major living butterfly display to open in the United States. Boender's partner, Clive Farrell, built the first public butterfly house in England eight years ago.

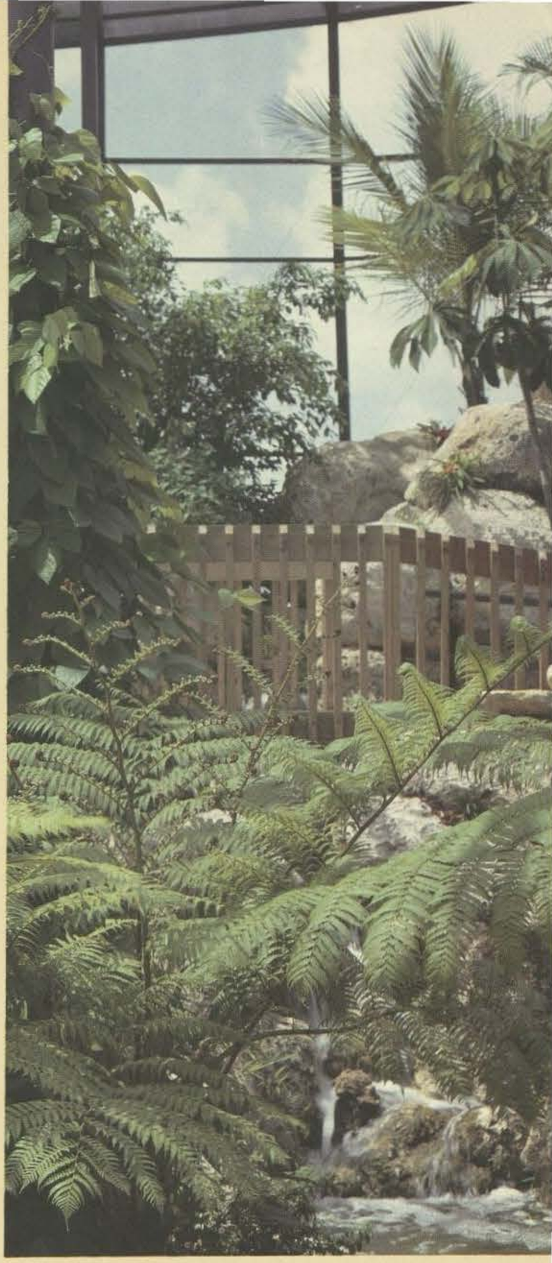
Butterfly World is situated in scenic Tradewinds Park in Coconut Creek, Florida. The semi-tropical, south Florida setting provides a nearly perfect climate for the thousands of butterflies continually maintained in the exhibit. At any one time there are usually a minimum of 2,000 live butterflies on display, including 80 different species from five continents. Two huge, screen enclosures with a total of 240,000 cubic feet of space provide a natural, open-air environment for the free-flying butterflies within.

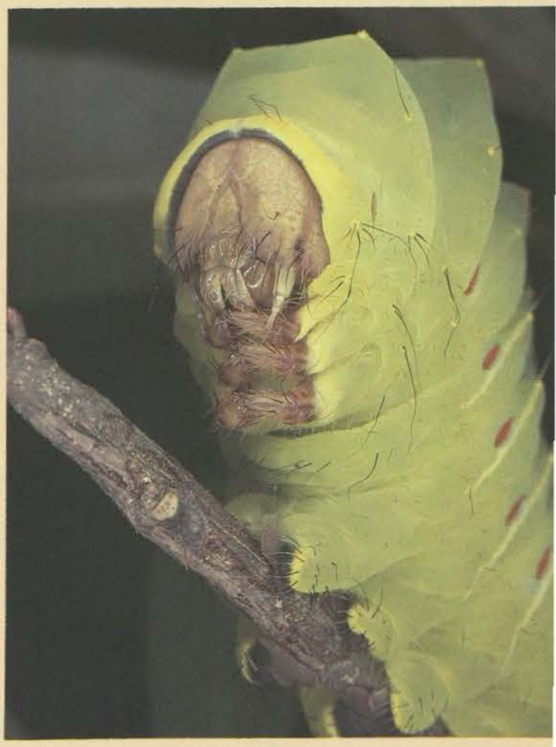
A tour of Butterfly World begins with a close look at the laboratory and the procedures used to ensure that the exhibit is well-stocked with its gorgeous, scaled occupants.

A glass wall provides easy viewing as several of the 25 employees give fresh leaves to the larvae that are maintained in small, lucite chambers. Boender estimates that five people are needed eight hours a day just for feeding the caterpillars. The caterpillars hatch from eggs obtained from female butterflies kept in special cages and supplied with appropriate food plants. After shedding their skin several times while growing, the caterpillars (larvae) are ready to pupate.

Each butterfly larva firmly attaches itself to wooden supports placed in the top of its cage. As the larval skin splits and is sloughed off, a soft, squirming, jelly-like pupa appears. This pupa, called a chrysalis in butterflies, will take approximately an hour to assume its final form and harden. The insect will remain in this stage for about seven to 10 days as its body components reorganize themselves into the structures of a butterfly.

Towards the end of the pupal period, the chrysalis will become transparent, revealing the colors of the developing butterfly. At the time of emergence, the chrysalis splits and the adult struggles free, only to hang motionless while body fluids are pumped through the wings. Within a half-hour, the wings have reached their full size and after an additional hour, they have hardened sufficiently to permit flight. Special viewing cases filled with chrysalids nearing emergence are stationed farther along in the exhibit. They provide visitors with the rare ▷





Top: Two enclosures totalling 240,000 cubic feet provide a natural environment for the free-flying butterflies within.

Bottom: A polyphemus larva munches toward metamorphosis.

The owl butterfly (left) often spends the day resting on a tree trunk. The julia butterfly (right) is one of the swiftest fliers in the heliconid family.

opportunity of witnessing the miracle of metamorphosis first-hand.

From the observation windows of the laboratory, visitors enter the first of the massive flight chambers. An air jet above the door causes momentary surprise, but prevents the escape of the room's fluttering inhabitants. Monarchs, zebras, sulfurs, julias, swallowtails — butterflies are everywhere. Landscaped with abundant, nectar-producing plants, the vivid blossoms of firebush, lantana, buddlea, pentas, and milkweeds compete in beauty with the color-dabbled wings of the butterflies.

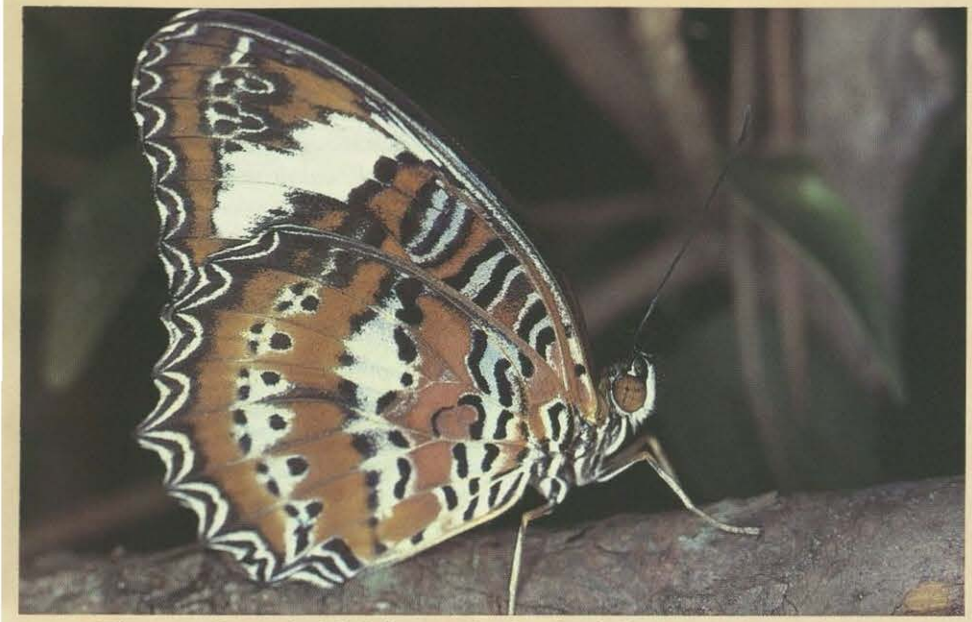
If the winged occupants of this first flight cage look familiar, it's because they are all North American species. As you stroll about the flower-laden paths, even more butterflies become evident. Some are resting on leaves, basking in the sun, some are mating, and some females are busy laying eggs. Benches selectively placed throughout the area allow you to relax while observing the variety of activities going on all around you. The classical music broadcasted in the exhibit area contributes to the tranquility.

Leading from the North American exhibit to the exotic insectary is a wide corridor, or basket walk, lined with hanging plants. Among these are insectivorous species, such as the tropical pitcher plant. Modified, tendril-like leaves, the curiously lidded pitchers lure unsuspecting bees and wasps inside to their deaths. Glass observation boxes mounted on the corridor walls are stocked with chrysalids ready to emerge. Visitors thus have the chance to see the myriad of pupal shapes, sizes, and colors, as well as the actual emergence of the butterflies. Wide, flat strips of transparent plastic suspended from ceiling to floor prevent domestic species from mingling with exotics. Those insect individuals that manage to find their way into the basket walkway are returned to their proper areas early each morning by one of the Butterfly World crew.

The next room simulates a tropical rain forest. Higher humidity is maintained by periodic mists squirted from a specially-constructed sprinkler system. Tropical palms, heliconias, and fig trees abound, as do flowering bromeliads. The quiet bubbling of a diminutive waterfall cascades into a central pool bordered by exotic tree ferns. Except to butterfly collectors or lepidopterists, these tropical butterflies are more difficult to recognize. Favorites among the visitors are the slow-flying, oval-winged heliconians. The caterpillars of these butterflies feed on passion vines, where the adult females can be seen alighting to lay their eggs. The aerobatics of this brightly colored group include long, slow glides, short dips, and an occasional steep dive.

More difficult to find are the secretive owl butterflies, which are active only at dawn and dusk. So named due to the large, intimidating eyespot on the hind wings, individuals can usually be found resting on tree trunks or hanging sleepily beneath banana leaves during the day. Sometimes an aggregation of six to eight owl butterflies may dine together at rotting fruit, the equivalent of a butterfly feast. Crackers, clippers and coolies, as well as postmen, tigers and tailed jays, are all exotic species that normally enjoy the hospitality of Butterfly World's tropical rain forest. Paths guide you among the foliage, around the perimeter, through a short cave, and up to a level above the waterfall where one can look out and enjoy the panorama.

Continuing from the rain forest exhibit, visitors once again are led outdoors. The road meanders



The tropical nymphalid (left) is said to be "brush-footed," its front legs useless for walking but dense with scales. The tropical danaid (right) is related to the monarch butterfly.

through a botanical garden planted with exotic flora. An especially large selection of passion vines with their strange showy flowers are cultivated on trellises, along with the unusual Dutchman's pipe vine. Visitors may wander about the grounds or sit and enjoy the plants at their leisure. However, some may wish to continue straight on to the next stop.

The air-conditioned insect museum provides a look at some of the other groups of insects in the form of preserved specimens on display. Huge beetles from Africa and South America, bizarre walking sticks from New Guinea, and brightly-colored katydids from Malaysia are just a few of the spectacular examples included. Foreign and domestic insects are used to illustrate the basic insect orders and common biological concepts such as mimicry, when one species of butterfly appears to "mimic" the markings of another species, and dimorphism, where butterflies in one species may have two distinct shapes or "morphs." Few people will forget this fascinating collection. Exiting the museum, the footpath skirts a large pond and leads back to the lobby.

Butterfly World is the largest exhibit of its kind and the first to be constructed in the Western Hemisphere. A tour of the facilities provides a restful and informative respite as well as exposure to some of the wonders of nature. Butterfly World personnel conduct guided tours throughout the day, explaining the basics of butterfly biology and identifying the various species observed. Ecological education is important to the staff of this facility, which has been featured in national publications such as *Scholastic Magazine*, *Ranger Rick* and several National Geographic books for children.

The Butterfly World staff has successfully raised thousands of endangered species including the Florida atala and the rare Schaus' swallowtail butterflies. The butterfly garden and park areas are also used for educational classes on how to attract butterflies.

In the future, Ron Boender hopes to include additional live insect displays featuring groups other than butterflies. While many interesting exotic insects can be maintained fairly easily in captivity, their potential threat to agriculture requires very thorough consideration before the Department of Agriculture will issue the necessary permits.

The concept of featuring spectacular "living flowers" is catching on, and a living butterfly display recently opened as one of the permanent exhibits at Callaway Gardens in Pine Mountain, Georgia. The Cecil B. Day Butterfly Center is a 7,000 square foot, glass-enclosed conservatory filled with 800-1,000 tropical butterflies, hummingbirds, and over 50 species of tropical plants. The conservatory is situated on four and one-half garden acres of the Callaway horticulture center, located adjacent to Roosevelt State Park.

Perhaps the combined successes of these living butterfly facilities will lead the way for other novel, educational exhibits in the United States.

James L. Castner received his Ph.D. in entomology with a minor in botany from the University of Florida. He will be co-leading an Earthwatch-sponsored research expedition to investigate katydids in the rain forests of the Peruvian Amazon this summer. His natural history writing and photography have been published in international magazines and in scientific texts.

BOB MCNALLY

SUMMER BASSIN'

By Bob McNally

Largemouth bass fishing isn't supposed to be good in the sizzling summer heat of the nation's premier big bass state. Ask anyone who doesn't live in Florida what's the prime time to make a trip to the Sunshine State. You'll probably be told to go in spring when heavyweight female bass are in the shallows spawning. Ask that same question of *native Floridians* and if they're honest, competent, year-round bass anglers, odds are good they'll say hot-weather summer bassing offers the most consistently good largemouth action as well as plenty of huge bass.

There's no denying that Florida's summer weather is hot and muggy. But, contrary to popular opinion among visiting anglers, Florida largemouths are not sluggish and are not difficult to catch in the summer. Fact is, when Florida anglers beat the heat by fishing early and late in the day, the bassing is as comfortable, temperature-wise, as summer fishing anywhere — and the action is often better than it is any other time of the year.

Of course, not every day of summer bass fishing on Florida's myriad lakes, ponds, rivers and streams is action-packed. But for consistently good success, I prefer summer bass fishing in Florida to fishing any other season. By "summer" fishing, I mean the time of year when the largemouths settle into their summer pattern. This is from the post-spawn period until early fall, usually mid-May through October. During these months Florida largemouths are very predictable. You know where the fish have to be, you know when they should feed, you know what lures and baits are best and how they should be fished. Moreover, the metabolic rate of largemouths in warm, summer water is very high. The fish are far more active and must feed more than they do any other time of year. In addition, Florida weather is more stable and consistent in summer. The combination of all these factors simply spells bass fishing success to savvy anglers.

Any angler worth his bass boat knows that weather has a major effect on bass activity and ultimately, fishing success. Unstable weather means unstable fishing conditions. Although Florida has a justifiable reputation for giving up heavyweight female bass during the spawning months of February, March and April, Florida's spring weather is more fickle and unpredictable than any other time of year. Of course, unstable spring weather disrupts consistent bass fishing anywhere in America. But I'm convinced that Florida's blustery cold front conditions — common in spring — turn off largemouths much more, and for longer periods, than cold spells in other states. This is probably because most Florida lakes are very shallow and overall water temperatures can drop quickly, while bass prefer a hot, balmy, semi-tropical climate.

If a cold front should slam into a lake in Arkansas, for instance, bass can leave the shallows and retreat to 20 or 30 feet of water where temperatures and conditions are more stable. But in Florida, very few lakes — even the big ones — have water of such depth. So the bass can't retreat to the deep. Instead, they burrow into the grass and go into semi-shock. A typical spring cold front can wipe out bass fishing for 10 days or more — and an angler fishing for Florida bass under such conditions can get discouraged in short order.

Florida's summer months, on the other hand, offer consistently hot, muggy, stable weather — perfect conditions for predicting largemouth activity.

Summer time Florida bass action peaks at dawn and dusk, at night, and during overcast weather. I've enjoyed excellent all-day bass fishing during the brightest July and August weather. But as a general rule, you're not missing much by fishing a few hours from, say, daybreak to about 10 a.m., and later from about 5 p.m. until dark. All-day hot weather bass fishing in Florida can be incredibly grueling — even for the hard-core, toughest-of-the-tough angling brigade. Midday temperatures and humidity are high, usually well into the 90s. And if there's no breeze it's like fishing in a butane burner. Even anglers who only fish early and late must be well-protected from the rays of the summer sun. Long-sleeved cotton shirts, long pants, large-brim caps, sunglasses and plenty of sun screen should be in every angler's boat bag.

Ideally, I prefer Florida bassing during a hot, slightly breezy day with thick cloud cover. Under such conditions you can expect bass—big bass — to be on the prowl in shoreline shallows. Night fishing is a good way to beat the Florida heat. But only on very clear lakes have I had what I consider top-notch night fishing. I haven't done well on Florida largemouths at night in waters that are dark or somewhat turbid. Yet on those same dark, turbid waters, I've enjoyed great summer bassing early and late or during overcast weather.

Another plus for summer bassing in Florida is that fishing pressure on the state's lakes and rivers is very light. Few out-of-staters are working Florida waters for bass. And many "casual," resident bass fishermen are concentrating on other species. Summer is the peak of the bream season and many Floridians would rather have a cooler full of bream than a half-dozen largemouths in the four- to six-pound class in the ▷

WILLIAM ROSTON

livewell—honest! Also, much of the state's best saltwater fishing is had only during summer, so lots of Florida anglers concentrate on tidewater action and leave the largemouths alone.

The importance of choice plant cover to summer bass fishing success cannot be overly stressed. The Florida aquatic plant types that most consistently hold good numbers of big summer largemouths are: eel-grass, cabbage weeds (pepper-grass), hyacinths, hydrilla, dollar bonnets, arrowhead weeds, pencil reeds and bullrushes. At times, excellent largemouth action can be had in big beds of lily pads. But bass generally prefer the other types because they grow on harder substrata. Many lily pad areas have silty, mucky bottoms that bass avoid, given the chance.

In hot weather, Florida largemouths congregate in eel-grass and pepper-grass. Both types of aquatic plants support plenty of forage for largemouths. Also, pepper-grass gives off a great deal of oxygen, an important consideration for bass prowling hot, oxygen-poor waters. The broad, curly leaves and long stems of pepper-grass also provide a great deal of shade and cover for bass and the prey they ambush.

Florida fishermen have cursed hydrilla for many years because when it is too abundant it can choke a lake to death. But in some Florida waters hydrilla actually provides good fishing because it supports myriad aquatic life and thus attracts largemouths. Bass can burrow right into the stuff in places where it hasn't grown into thickly matted "walls" of weeds. "Patches" or big clumps of submerged hydrilla offer the best summer bassing opportunities. Underwater "islands" of hydrilla that have three or four feet of water above them almost invariably give up stout Florida bigmouths.

Water-hyacinths have long been another problem in Florida waterways. But, like hydrilla, the right amount of hyacinths can be a boon when summer bass fishing. The best hyacinth beds are small, floating islands. Hyacinths have a thick, bristly root system that hangs down a foot or more beneath the plants. The roots harbor grass shrimp, crayfish and small minnows that in turn draw largemouths. Also, thick mats of hyacinths act like a parasol for bass trying to escape the bright rays of the summer sun.

A good rule of thumb to use for successful summer bass action is to fish the weed beds closest to the deepest water in the area. Also, the edges, points, turns and "slots" in beds that are nearest to deep water (this may be only four or five feet in some shallow lakes) will be the "contact points" when bass move into the weeds to feed.

Florida bassing is as hot as the weather in the summer.

Virtually all standard bass lures work well for Florida largemouth. I prefer lures that can be worked fast and still provide good, appealing action. Despite what some anglers may believe, a quickly retrieved lure is most likely to get the attention of summer bigmouths and "trigger" them into striking out of reflex action. For this reason, I favor big, tandem-blade spinner-baits and buzz-baits, shallow-running diving plugs that have a "tight" wobbling action, weedless spoons with "Ripple Rind" or forked-tail chunks of porkrind attached, and top-water plugs that work well when retrieved quickly—such as Heddon's "Zara Spook." I've recently had superb results "buzzing" Lindy's "Skitter-Buz" spoons and using their "Giant Tandem Spinner-baits." I've been sweetening both lures with a small live shiner, and they've brought in some huge largemouths. The "Giant Tandem" is designed for muskies, but they are among the most deadly big Florida bass lures on the market.

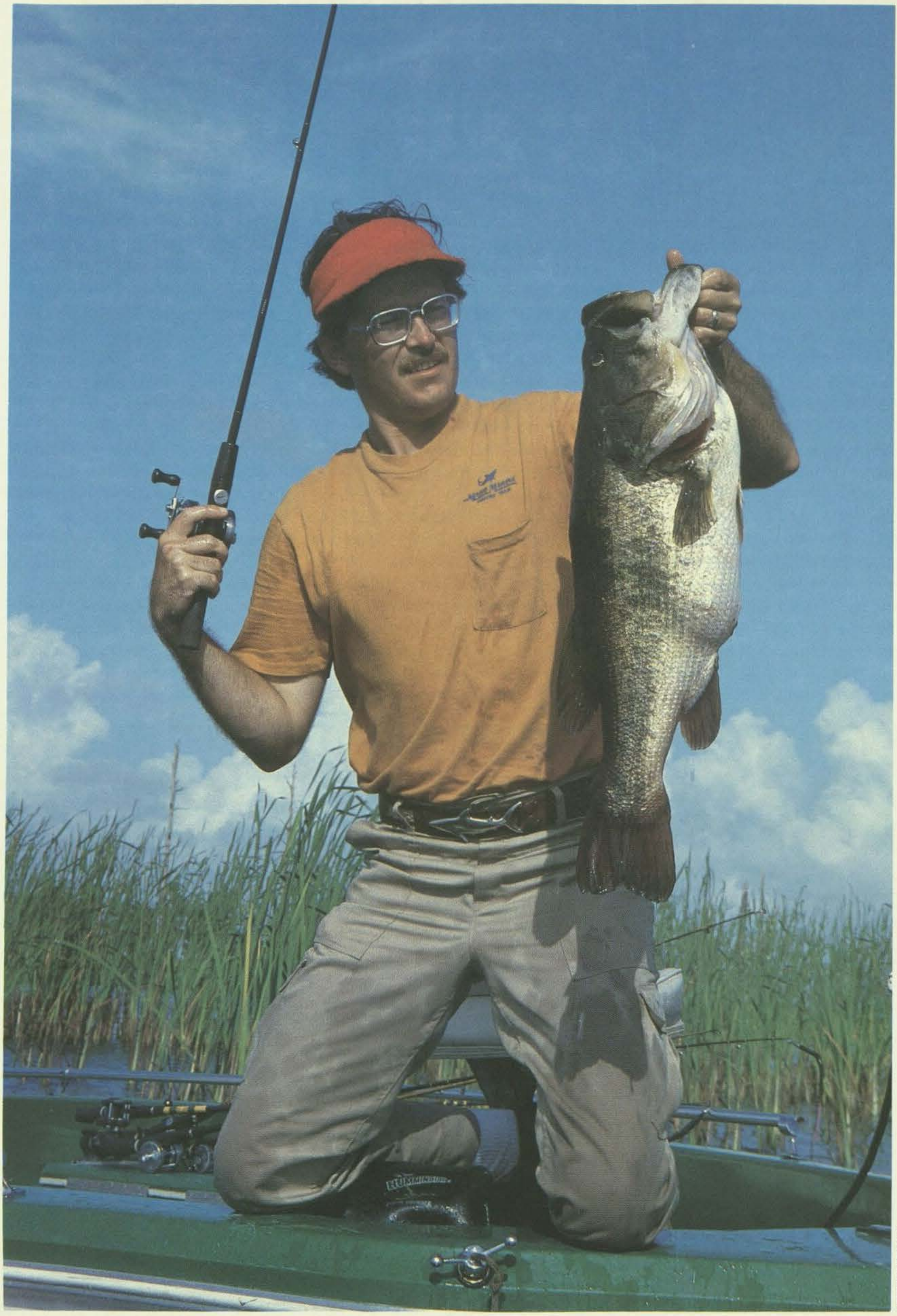
Plastic worms, of course, are good summer lures, too. But I've found they're best fished with slip-sinker weights that are slightly heavier than you'd ordinarily use. This gives the worm a faster "fall rate," and seems to draw more strikes from hyperactive summer largemouths. Also, it's usually a good idea to impart more action to a worm than you'd give it during spring, fall, or cold weather. "Hopping" or "jumping" a worm a foot or more off the bottom during the retrieve works very well.

Fly-rod bugs and streamers are also great tools for boating summer Florida bigmouths. Big popping bugs are deadly, and they are one of the few lures I work slowly during summer. My favorite is the "McNally Frog Popper," designed by my dad over 30 years ago. It's big, green, has bucktail legs that kick like a real frog when retrieved, and it's built on a 3/0, extra-long shank hook, so you miss very few bass that hit.

Since I moved to Florida 15 years ago it's always puzzled me that few out-of-state bassmen visit Florida during summer — the peak of the vacation season. When I've asked northern fishing friends about this, they always reply that they prefer to visit Florida in spring when the warm weather and the bass fishing in their home states have not yet peaked.

"Why visit Florida bass lakes in summer when it's so hot down there, and when I can fish the lakes and rivers around my area?" they ask. The answer, of course, is because Florida bassing is as hot as the weather in summer — and no other state or foreign country can boast waters that give up more heavyweight largemouths than Florida.

Bob McNally is the outdoor editor of The Florida Times-Union newspaper and a regular free-lance contributor. His fishing, hunting and recreational articles also appear in numerous national outdoor magazines.


BOB MCNALLY

Don't Be An Alligator Attack Victim

By Scott Ball

Here we are, in FLORIDA – the Sunshine State. The very mention of the word conjures up all sorts of mental images. Orange groves...sandy beaches...seafood...Everglades... fishing...Mickey Mouse.

And...alligators. This word also does a good job of conjuring up mental images. And for some people, the thought is a bit unnerving.

Once classed as an endangered species, the comeback of the alligator is a wildlife management success story. The population of gators in Florida has doubled since 1974. And with 800 new residents moving into the state every day, our human population has zoomed past the 12 million mark. To make room for the people, much of what once was alligator habitat is turning into subdivisions.

It's simple math. More alligators + more people – alligator habitat = an increased likelihood that an alligator will make an unwelcome appearance in a parking lot or swimming pool. Even more serious, although far less likely, is the possibility that an alligator will attack a human.

The first thing that should be pointed out about alligator attacks is that they are rare. Consider the thousands of lakes and ponds and thousands of miles of rivers and streams in Florida. Think about the millions of people who swim and play in those waters so many times during the course of a year. Yet, since the Game and Fresh Water Fish Commission began keeping such records in 1948, only 103 alligator attacks against humans have been reported. Five of those were fatal.

On the average, only six attacks a year have occurred since 1972. Although there have been five alligator-related deaths and other victims have suffered major injuries, the majority of alligator attacks have resulted in less-than-serious wounds.

The fact that alligator attacks are rare is no reason to take them lightly. Commission scientists thoroughly investigate the circumstances surrounding each attack and perform a necropsy on the attacking alligator to learn as

TOM ULRICH

much as possible about why alligators attack humans. One thing they have learned is that attacks don't occur for any one reason.

"There doesn't seem to be a common thread linking every attack on record," said Dennis David, the Commission's alligator program coordinator. "Some attacks will have one factor in common, while others will be similar in other ways. But studying the similarities and differences of these incidents provides us with information that we can pass on to the public in order to help them avoid alligator attacks."

David believes that, without the Commission's nuisance alligator control program, the number of alligator attacks would be much higher. The Commission has contracted 50 nuisance gator trappers in the state to remove alligators that, for one reason or another, have lost their fear of humans and have become a threat to public safety.

"One thing we do know about alligators is those that are not afraid of humans are more likely to attack," David said. "When the situation warrants it, a nuisance alligator trapper is sent to the scene to remove the animal before any harm comes to the public."

The Commission receives approximately 7,000 nuisance alligator complaints each year. Many calls are from people overreacting to the sight of gators in the water — gators that pose no threat. Still, about half of the complaints are serious enough to warrant removal of the alligator in question. In fact, the heaviest alligator ever documented in Florida was recently removed from Orange Lake near Gainesville due to a nuisance complaint. It was 13 feet 10 ½ inches long and weighed 1,043 pounds. Seven weeks later another nuisance gator, measuring just over 14 feet, was removed from the Apalachicola River. Both gators became problems because they had been feeding on fish scraps tossed into the water near fish camps.

As menacing as they appear to many, alligators have a natural fear of humans. But they lose that fear when people feed them.

"Throwing marshmallows or scraps of food to gators may be amusing, but it teaches alligators to associate people with food," David said. "We know that many alligators that attacked humans had previously been fed. That's why it's against the law to feed alligators. Whether or not you plan to feed it, an alligator that's accustomed to handouts is more likely to approach you."

Alligators tend to avoid people. But just like any parent, a gator is protective of its offspring. Should you approach its nest or young, a gator would hiss, growl and snap its jaws to frighten you away; but it would rather not fight you. Although there have been no documented cases of nesting gators attacking people, it's a good idea to stay away from an alligator nest.

Many alligator attacks occur when a swimmer or snorkeler accidentally bumps into a submerged or partially submerged gator. The only way the alligator has of investigating or defending itself against an intruder is to grab with its jaws. So, some alligator attacks are not acts of aggression, but of defense.

Eight alligator attacks have been documented on golf courses, and numerous nuisance gators have been removed from the greens and fairways before they could harm anyone. The attacks occurred when people were recovering balls from ponds, and most of those were people collecting balls for resale.

"Gators that inhabit golf course lakes are more acclimated to people than other gators are. This may contribute to the frequency of attacks or nuisance complaints," David said.

"If you're looking for ways to earn extra money, I would suggest collecting aluminum cans. There's much less risk involved. And golfers should exercise extreme caution before wading or reaching into a water hazard to retrieve errant shots," he added.

Alligator attacks have been recorded in every month of the year. But, as you might expect, the majority of attacks occur during the summer months. Alligators are more active then and, of course, the warm weather brings more people into the water. During the cooler months, alligators remain inactive or bury themselves in muddy lake bottoms and river banks and don't feed for several months.

When they are active, alligators tend to feed at dusk or at night. ▷

CLARK FRAZIER

Many alligator attacks occur when a swimmer bumps into a submerged or partially submerged gator.

Avoid swimming in areas inhabited by gators during these times.

An attacking alligator usually approaches its prey underwater. If the victim is standing in the water, the alligator will approach from the side to knock it down. The movement is a lightning-fast, spin-and-strike motion. It arcs its body sideways, knocking down the victim with its head and grasping it in the side of its jaw.

"Once it has hold of its prey," according to David, "the gator will vigorously shake it and roll over and over before submerging to drown it. If an alligator has killed a large animal, it will often stash it at the water's edge and feed on it for a few days, even after the animal has decomposed a bit."

While more adept in the water, an alligator is also capable of attacking on land, although less efficiently.

"Alligators can generate short bursts of speed on land, maybe 10 miles an hour downhill, but they tire quickly and need a long rest to build up another spurt of energy," said David. "According to an old wives' tale, a gator can outrun a horse for short distances. There's no truth to that. I know of only one incident of an alligator attacking on land."

Research indicates that alligators may attack when they're hungry, and a hungry gator will eat almost anything. Their primary food is fish, but they also partake of turtles, amphibians, birds, snakes, snails, insects, mammals and even other alligators.

"Most importantly, alligators are opportunistic," said David. "A hungry gator won't pass up the chance at a dog swimming in a lake if the gator is big enough to overpower it. And as gruesome as it sounds, even humans are not too big for some alligators to handle. But, those instances are rare."

Once you know a bit about what makes alligators tick, you can use that knowledge to help keep you from becoming the victim of an alligator attack.

- Don't feed or entice alligators. This causes them to lose their fear of humans and associate people with food. It's also against the law.
- Don't swim outside of posted swimming areas or in waters that might contain alligators.
- Don't swim at dusk or at night in waters where alligators are known to live. This is the prime feeding time for gators. Confine swimming to daylight hours and avoid areas with thick shoreline vegetation — natural habitat for large alligators.
- Don't throw fish scraps into the water or leave them on shore. It's another way of attracting gators to your dock, just as if you purposely fed them.
- Don't allow pets to swim in areas inhabited by alligators or even in designated swimming areas with humans. Dogs are attacked more often than humans because they more closely resemble the natural prey of large alligators.

LYNN STONE

Should you become the victim of an alligator attack, do what comes naturally — fight like mad! Once an alligator realizes it has grabbed something too large to overpower, it usually will let go.

Even if you are bitten by a small gator and the wound appears to be minor, seek medical attention. Alligators carry bacteria on their teeth that will leave you with a nasty infection.

If you see an alligator in a place where alligators shouldn't be — in your back yard, swimming pool or parking lot — or if an alligator is behaving in a manner that makes you think it has lost its fear of humans, call the nearest office of the Commission. Your report will be evaluated and, if necessary, a licensed alligator trapper will be sent to handle the situation.

Residents and visitors alike must realize that alligators are an important part of Florida's heritage and that these prehistoric reptiles play an important role in the ecology of Florida's wetlands.

Alligators and humans can coexist. Since we're the ones with the bigger brains, it's up to us to learn how to avoid conflicts with the creatures that act on instinct.

(**EDITOR'S NOTE:** More information about alligators and how to avoid alligator attacks is available in the brochure, "Living With Alligators." Contact any regional office of the Commission for a free copy.)

Scott Ball is an information specialist in the Commission's Tallahassee office. He writes feature stories and news releases, produces an agency newsletter, is the administrator for the Wildlife Alert program and provides information to the news media and the general public.

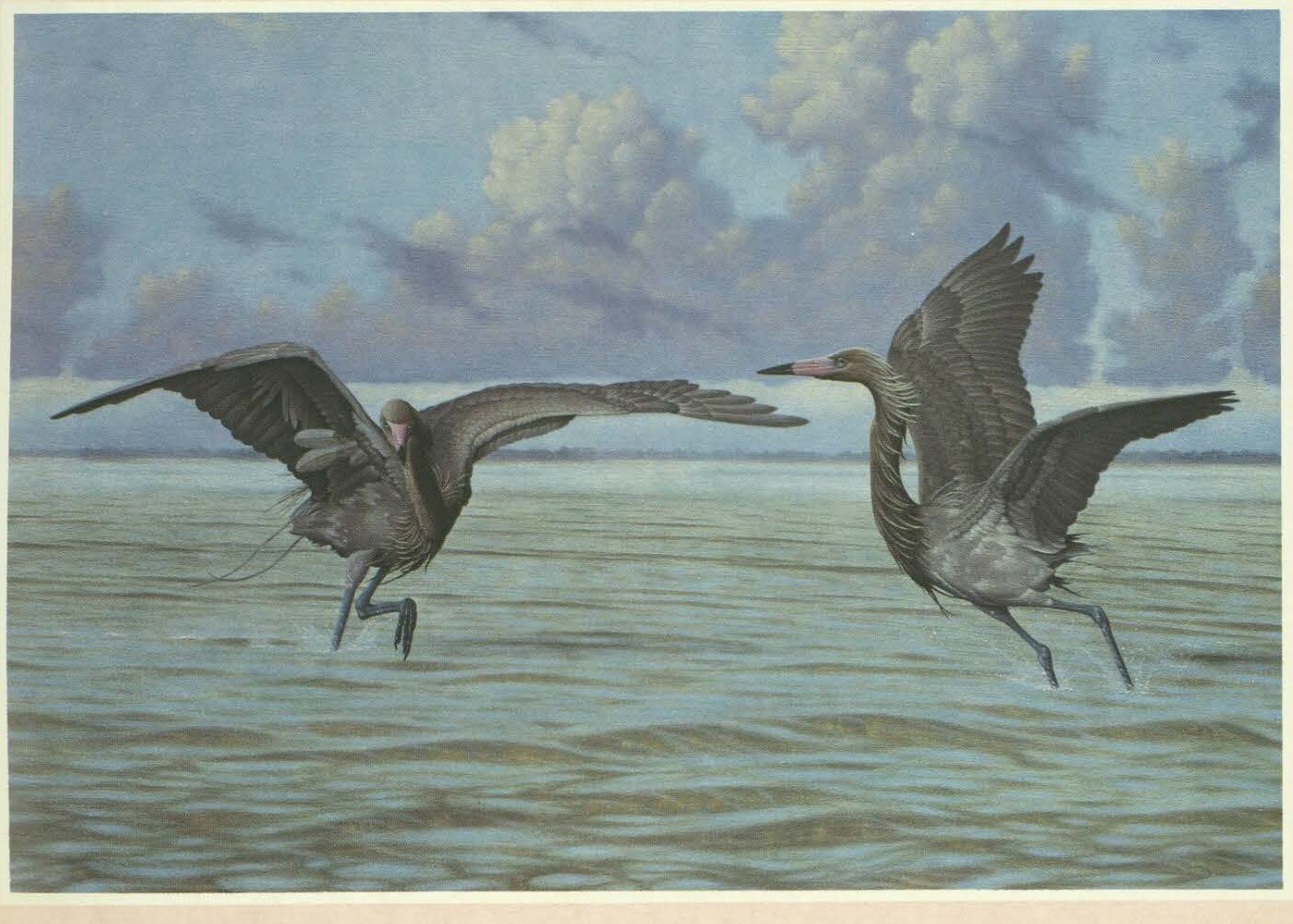
Reddish Egrets in Territorial Dispute

Purchase three subscriptions to receive a copy of this print.

A painting of a pair of reddish egrets in "Territorial Dispute" is the 1989 cover art competition winner. Dillywn "Dee" Smith observed the aggressive egrets chasing each other through the shallow waters of Florida Bay in Flamingo Key. A dedicated naturalist, he spends many hours in the field observing characteristic traits and mannerisms of animals in order to depict Florida's diverse wildlife accurately. His lifelike oil paintings generally portray his subjects in vibrant, photo-realistic style.

The reddish egret (*Egretta rufescens*) is found primarily in the southern portions of the state. When this egret is in the gray phase, it resembles the adult little blue heron. Except for the bluish legs, the white phase of the reddish egret is similar to the great egret. This species flaps and fans its wings when dancing and lurches about when feeding, often appearing rather comically dramatic. The ruffled, loosely-feathered, elongated neck adds to its unsettled demeanor.

We are pleased to offer a signed, numbered print of "Reddish Egrets" by Dee Smith (featured on the cover pages of this issue). Purchase three gift subscriptions and we'll send you a print of this quality oil painting. ▷



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FLORIDA WILDLIFE is pleased to offer you a signed, numbered print of Dee Smith's "Reddish Egrets" (shown on the cover of this issue) when you purchase three gift subscriptions. It's our way of thanking you for sharing *FLORIDA WILDLIFE* with others. We know you will be pleased with this outstanding work of art and that your friends will appreciate your subscription gift to them.

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Wildlife IN·ART

Sixth Annual *FLORIDA WILDLIFE* Cover Art Winners

FLORIDA WILDLIFE proudly presents the Judges Choices for the sixth annual *FLORIDA WILDLIFE* cover art competition. The winner of this year's competition, "Reddish Egrets in Territorial Dispute" is featured on the cover of this issue.

Game and nongame animals, including endangered species, were eligible for the cover art contest. The winning selection was determined to be a fine work of art that would fit the format of our wrap-around cover. The piece had to be artistically superior, display elements of good design and technical ability, and show a knowledge of wildlife anatomy.

Past winners have included a Florida panther, a gray fox, wood ducks in flight, a pair of quail, and largemouth bass.

There were many other beautiful and appealing entries this year, but the judges agreed that the reddish egrets captured a special moment in Florida's diverse wildlife drama. ▷

White-Tailed Deer by David Bollman

Cypress Woodies by Terry Smith

Bald Eagle by Stephen P. Kourey

Red-Tailed Hawk by Terry Smith

Outdoor Library

Florida's Butterflies and Other Insects by Peter D. Stiling

Unicorn, glassy-winged sharpshooter, cow killer, painted lady —these are the stars of a book recently published by the Florida-based Pineapple Press. Encountering a list of characters like this one, a reader might think this is a science fiction novel or a collection of fairy tales. However, the accounts published here are completely factual. *Florida's Butterflies and Other Insects*, by Peter D. Stiling, illustrates how truth can be stranger than fiction — especially with regard to Florida's many-varied insect fauna.

With 154 color plates and an interesting text punctuated with natural history anecdotes and appealing bits of insect trivia, *Florida's Butterflies and Other Insects* introduces readers to many of the six-legged, eight-legged, and milli-legged creatures that live in Florida. True, some insects represent pestilence, especially to agriculture, and the author identifies such nuisances. However, the book focuses more on the traits that distinguish and identify various insects, arachnids, mites and millipedes, often interjecting stories from literature and history that show how these animals have interacted with humans throughout the ages. As an added feature, it gives tips on how to landscape to attract butterflies to your yard, as well as a list of butterfly gardens and insect collections throughout the United States.

Organized like a field guide, this book is arranged systematically and divides its subjects into taxonomic orders, such as "Beetles: Order Coleoptera," and "True Bugs: Order Hemiptera." For the layperson unfamiliar with scientific terminology and classification, finding a particular insect may require riffling through pages of pictures looking for that one, familiar visage. However, the color photographs are sharp and clear, their subjects usually appearing on host plants or in their native habitats. *Florida's Butterflies and Other Insects* shows the extravagant diversity of form and behavior that makes insects and their kin so wondrous.

Florida's Butterflies and Other Insects (95 pp.) is available in hardback for $24.95 from Pineapple Press, Inc., P.O. Drawer 16008, Sarasota, Florida 34239. (ISBN 0-910923-54-X).

— Mary Tebo

Bass Fishing Facts by Larry Larsen

Bass Fishing Facts, by Larry Larsen, is an in-depth, 127-page paperback book that examines the natural history and behavior of bass, explaining how to use this knowledge to fish successfully. The author relates details on spawning characteristics of bedding bass, the post-spawn period, feeding motivations, effective bait presentation, and water chemistry factors. One chapter includes tactics for the more uncommon black bass, including the spotted, redeye, Suwannee, shoal.

Bass Fishing Facts, An Angler's Guide to Bass Lifestyles and Behavior (ISBN 0-936513-05-5, $11.95), covers aspects about how bass sense sight, smell and sound. Most of these tips will enable anglers to select the best lures or bait and to use different fishing strategies for varying water and weather conditions.

Did you know that fish don't have eyelids? Instead, bass' eyes contain a black pigment that shades the photosensitive cells of the retina, allowing them to see equally well in bright light conditions. According to the author, that's why lunkers spend more time than other fish in brightly lit areas and are often caught in the midday sun periods.

If you've ever chosen a lure that worked one time but found no action in a similar setting, you'll probably want to read the information about color selection preference of bass. The author states that color vision is vital to the life of the largemouth and that most bass rely on it while foraging, for self defense and for mating signals.

In his chapter on how bass sense smell, Larsen notes that there hasn't been much scientific research on the olfactory powers of bass. Yet, one researcher claims that bass can discriminate scent much better than even the best bird dog! Larsen also says that optimal conditions for using scented attractants may be in cold water when bass are more lethargic, or after cold fronts when bass aren't aggressively chasing lures, and during slow-moving lure fishing.

Larsen frequently writes on bass subjects for *Outdoor Life*, *Sports Afield*, *Fishing Facts*, *Field and Stream*, and *FLORIDA WILDLIFE*. This is the sixth book in Larry Larsen's Bass Series Library. Others give specific information about following the forage for better bass angling, bass pro strategies, tricks and techniques of lures, and shallow water bassing. The books are available by writing to Larsen's Outdoor Publishing, 2640 Elizabeth Place, Lakeland, FL 33813.

— Andrea H. Blount

By Captain Ed Tyer

Hunter Safety Training Will Be Required

The 1989 Florida Legislature voted to require that young hunters successfully complete a Hunter Education course. This legislative action was supported by thousands of Florida sportsmen. With the passing of this law, Florida joins 40 other states requiring firearm safety and hunter responsibility training for young hunters.

The law reads in part:

"*On or after June 1, 1991, it shall be unlawful for any person born on or after June 1, 1975, to take wild animal life with the use of a firearm in this State without having first successfully completed a hunter safety course.*"

Another section provides that "A *hunter safety certification card issued by another wildlife agency of another state, or Canadian province, which evidences that the holder thereof has successfully completed a hunter safety course which is approved by the commission, shall serve in lieu of the hunter safety certification card issued by the commission.*"

The law also exempts certain people from the hunter education requirements. It states: "*The requirements of this section shall not apply to any person hunting in his county of residence on his homestead or the homestead of his spouse or minor child, or any minor child hunting on the homestead of his or her parent.*"

Other states have found a reduction in hunting accidents and an increase in the quality of hunting when this type of legislation has been enacted. Although Florida's accident rate is low, any decrease will be welcome. The lack of hunting ethics on the part of some hunters reflects heavily on all hunters. This course provides a foundation of safety rules and hunting ethics.

Hunters needing this training are urged to take the course early. Waiting until the last minute could cause some people to miss a hunting trip. The number of participants in a given class is limited in some areas due to accommodations. If a person waits until just before the registration deadline to enroll there may not be room in the class.

The free course is available in all counties of the state. For information on the next class in your area, contact the Commission's regional office nearest you. The five regional offices are: Northwest, Panama City (904) 265-3676; Northeast, Lake City (904) 758-0525; Central, Ocala (904) 629-8162; South, Lakeland (813) 644-9269; Everglades, West Palm Beach (407) 683-0748. For Broward, Collier, Dade and Monroe counties call the Miami Hunter Education Office (305) 470-5046.

It's The Law

By Inspector Kyle Hill

Last year a wildlife officer came to a lake on private property where I was fishing. Does a wildlife officer have the legal right to enter my property without my permission?

Yes, wildlife officers are constituted peace officers and state law authorizes them to go on all premises, posted or otherwise, in the performance of their duties. Without this authority wildlife officers would be unable to properly protect wildlife and freshwater aquatic life on private property. Since native wildlife is not "owned" by private individuals, but is held in trust for the people of Florida, it is necessary that the Commission's officers be able to protect our natural resources on all lands.

When I'm fishing must I submit to a boating safety check of my boat without a warrant?

Yes, wildlife officers and marine patrol officers are empowered to conduct boating safety checks in order to determine compliance with state laws. Such inspections, when conducted on the water, are regulatory in nature. However, many courtesy boating inspections are performed at predetermined and advertised sites. These checks are for the purpose of informing boaters on the proper equipment necessary to enable them to boat safely on Florida's waters. When boating on Florida waters, operators are required to submit to boating safety checks conducted by officers.

I was a victim in a "hit and run" accident when a wildlife officer came to my aid. He arrested the driver of the other vehicle. Before this incident I was unaware that wildlife officers could enforce traffic laws. Is this a normal procedure?

Yes, as statewide law enforcement officers, wildlife officers are entrusted with very broad authority. They are able to enforce all laws of the state in all jurisdictions, including traffic laws. Wildlife officers are empowered to take action at any time state laws are being violated in their presence.

GFC

FLORIDA WILDLIFE FRESH WATER RECORD FISH PROGRAM

OFFICIAL STATE RECORDS THROUGH MAY 1989

SPECIES	OFFICIAL WEIGHT	ANGLER, CATCH DATE & LOCATION
Largemouth bass **(*Micropterus salmoides*)**	17 pounds, 4-¼ ounces CERTIFIED	Billy M. O'Berry, July 6, 1986 Unnamed lake, Polk County
Redeye bass **(*Micropterus coosae*)**	7 pounds, 13-¼ ounces CERTIFIED	William T. Johnston, February 18, 1989 Apalachicola River, Gadsden County
Spotted bass **(*Micropterus punctulatus*)**	3 pounds, 12 ounces CERTIFIED	Dow Gilmore, June 24, 1985 Apalachicola River, Gulf County
Suwannee bass **(*Micropterus notius*)**	3 pounds, 14-¼ ounces CERTIFIED	Ronnie Everett, March 2, 1985 Suwannee River, Gilchrist County
Striped bass **(*Morone saxatilis*)**	38 pounds, 9 ounces CERTIFIED	Justin McAlpin, November 15, 1979 Lake Seminole, Gadsden County
White bass **(*Morone chrysops*)**	4 pounds, 11 ounces CERTIFIED	Richard Steven Davis, April 9, 1982 Apalachicola River, Gadsden County
Sunshine bass **(*white bass x striped bass hybrid*)**	16 pounds, 5 ounces CERTIFIED	Thomas R. Elder, May 9, 1985 Lake Seminole, Jackson County
Black crappie **(*Pomoxis nigromaculatus*)**	3 pounds, 8 ounces CERTIFIED	Ronald Kevin Prevatt, March 5, 1988 Lake Dias, Volusia County
Flier **(*Centrarchus macropterus*)**	1 pound, 1 ounce CERTIFIED	Justin McAlpin, July 5, 1985 Lake Iamonia, Leon County
Bluegill **(*Lepomis macrochirus*)**	2 pounds, 15-¼ ounces CERTIFIED	John R. LeMaster, April 18, 1989 Crystal Lake, Washington County
Redbreasted sunfish **(*Lepomis auritus*)**	2 pounds, 1-¼ ounces CERTIFIED	Jerrel R. DeWees Jr., April 29, 1988 Suwannee River, Gilchrist County
Redear sunfish **(*Lepomis microlophus*)**	4 pounds, 13-¾ ounces CERTIFIED	Joseph (Joey) Marion Floyd, March 13, 1986 Merritts Mill Pond, Jackson County
Spotted sunfish **(*Lepomis punctatus*)**	0 pounds, 13-¼ ounces CERTIFIED	Coy Dotson, May 12, 1984 Suwannee River, Columbia County
Warmouth **(*Lepomis gulosus*)**	2 pounds, 7 ounces CERTIFIED	Tony David Dempsey, October 19, 1985 Yellow River (Guess Lake), Okaloosa County
Redfin pickerel **(*Esox americanus*)**	1 pound, ¾ ounce CERTIFIED	Robert E. Wilcox, Jr., July 18, 1986 Jr. Walton Pond, Okaloosa County
Channel catfish **(*Ictalurus punctatus*)**	44 pounds, 8 ounces CERTIFIED	Joe Purvis, May 19, 1985 Lake Bluff, Lake County
White catfish **(*Ictalurus catus*)**	16 pounds, 12 ounces CERTIFIED	Shawn James Williams, April 24, 1984 Caloosahatchee River, Lee County
Bowfin **(*Amia calva*)**	19 pounds, 0 ounces CERTIFIED	Jim Brown, November 5, 1984 Lake Kissimmee, Osceola County
American shad **(*Alosa sapidissima*)**	4 pounds, 13-¼ ounces CERTIFIED	Larry L. Piefer, January 29, 1989 St. Johns River, Seminole County
Longnose gar **(*Lepisosteus osseus*)**	41 pounds, 0 ounces CERTIFIED	Evan D. Merritt, April 14, 1985 Lake Panasoffkee, Sumter County
Alligator gar **(*Atractosteus spatula*)**	122 pounds, 0 ounces CERTIFIED	Michael Horton Booth, Sept. 19, 1987 Escambia River, Escambia County
Florida gar **(*Lepisosteus platyrhincus*)**	7 pounds, 0 ounces CERTIFIED	Greg Rozycki, June 28, 1988 Oklawaha River, Putnam County

Largemouth bass **(*Micropterus salmoides*)**	20 pounds, 2 ounces NOT CERTIFIED	Frederick Joseph "Fritz" Friebel, May, 1923 Big Fish Lake (private), Pasco County
Black crappie **(*Pomoxis nigromaculatus*)**	3 pounds, 12 ounces NOT CERTIFIED	John McGilvray, December, 1964 Newnans Lake, Alachua County
Chain pickerel **(*Esox niger*)**	8 pounds, 0 ounces NOT CERTIFIED	Jimmy James, July 5, 1971 Lake Talquin, Gadsden County
Carp **(*Cyprinus carpio*)**	40 pounds, 9 ounces NOT CERTIFIED	Bernard Leon Rowan, May 24, 1981 Apalachicola River, Gadsden County

The GFC Record Fish Program

Documenting Fishing Tales

By Scott Hardin

The Florida Game and Fresh Water Fish Commission established a record fish program in 1976. Although the Commission had been issuing "Fishing Citations" for large fish since 1954, this marked the first official recognition of state records. Since that time, the Commission has kept records of the largest catches of 24 species of fresh water fish commonly caught on hook and line. This year five-pound butterfly peacock bass will also qualify for the records.

In a few cases, the Commission has recognized record fish caught prior to the implementation of the Record Fish Program. Each instance involved a very large fish with reasonable authentication of its weight. The most notable of these is a 20-pound 2-ounce largemouth bass caught by Frederick Joseph "Fritz" Friebel in 1923. Four species of fish have uncertified records (see table on the adjoining page).

To be recognized as an official state record, the applicant must have the fish certified by a Commission fisheries biologist or qualified Commission employee. One angler caught a largemouth bass whose reported weight would have eclipsed the current certified record had he only summoned a Commission employee to witness the weighing. The unfrozen fish must be weighed on a scale certified by the Florida Department of Agriculture and Consumer Services. The fish must be caught using legal fishing methods, as one angler recently discovered when his potential state record bluegill was not recognized because he hadn't purchased a fishing license.

Since our update last year, three state records have fallen and one has been established. John Lemaster of Chipley caught a 2-pound 15 ¼-ounce bluegill topping the old record of 2 pounds 14 ounces which had stood since 1985. An even older record fell when William Johnston of Cleveland, Tennessee caught a 7-pound 13 ¼-ounce redeye bass on the Apalachicola River. The former record redeye, also from the Apalachicola, weighed an even 7 pounds and was caught in 1982. Larry Piefer of Casselberry broke the record for American shad with a 4-pound 13 ¼-ounce fish. The record had been held since 1985 by Phil Chapman. Both fish were landed in the St. Johns River.

While records for these species have recently been broken, others have been surprisingly long-standing. The largest certified white bass was taken from the Apalachicola River in 1982. The Commission sponsors an annual white bass tournament to collect broodstock for its hatcheries. Despite the yearly congregation of anglers, no one has topped Richard Davis' 4-pound 11-ounce fish.

The largest striped bass recorded from Florida is Justin McAlpin's 38-pound 9-ounce trophy from the Apalachicola, caught almost 10 years ago. Fishery biologists have documented several larger striped bass in the Apalachicola/Chattahoochee/Flint River system including one 66-pound specimen, but no angler has successfully landed one of these monster rockfish in the last decade.

The longest standing record is the 8-pound chain pickerel caught by Jimmy James in Lake Talquin in 1971. Because Mr. James' fish was caught prior to the inception of the record fish program, it is not certified. Since that time, no one has submitted an application for a chain pickerel exceeding the minimum qualifying weight of 6 pounds.

Which records have been broken most often? The largest sunshine bass has been topped 13 times since they were first stocked in the Apalachicola River system in 1976. This hybrid between the striped bass and white bass was developed in the early 1970s. The first record sunshine weighed only 6 pounds 8 ounces and this record stood less than a month. In fact, the record was broken six more times in the following year as this "new" sportfish continued to grow. The current record of 16 pounds, 5 ounces has stood since 1985 as this species is approaching its maximum growth potential. However, in the last few years, Commission biologists have stocked sunshine bass with striped bass as the male parent along with the original cross fathered by white bass. Fishery biologists are not sure just how large this "reciprocal" hybrid will grow. Who knows, another new wave of record breakers may be out there waiting!

Scott Hardin is a biologist and data analyst for the Division of Fisheries.

Conservation Update

Compiled by Andrea H. Blount

National Wilderness Celebration

"In wilderness is the preservation of the world."
— Henry David Thoreau

The Wilderness Society is launching a year-long, 25th anniversary celebration of the passage of the 1964 Wilderness Act that created the National Wilderness Preservation System. Today, 90.7 million acres in national parks, national forests, national wildlife refuges and national grasslands are protected by Congress as wilderness areas.

The campaign will begin with National Wilderness Week, September 3-9. Events are planned to "educate as broad an audience as possible to the many values and benefits of wilderness," said George T. Frampton Jr., president of the Wilderness Society. "We also want to alert the public to the urgent need to protect the scores of wild areas in America still vulnerable to development, such as the Coastal Plain of the Arctic National Wildlife Refuge," he said.

"The contribution of wilderness areas to the preservation of biological diversity, the protection of watersheds, and, perhaps most important in light of the greenhouse effect, the maintenance of healthy air, can no longer be taken for granted. The very health of the planet and the ultimate survival of our own species may well depend on the survival of wild areas and the natural processes occurring within them."

Wild Patients Welcome

Florida panthers, alligators, pelicans and other wildlife now have a state referral clinic to provide advanced medical and surgical treatment at the University of Florida's Veterinary Medical Teaching Hospital. The clinic, the first of its kind in the southeastern United States, can accommodate virtually any bird or terrestrial animal found in Florida, according to the Health Science Center.

Florida is ranked number two in the nation for diversity of wildlife species. "Florida also has more than 5,000 captive species," said Dr. George V. Kollias, chief of wildlife and zoological medicine at UF's College of Veterinary Medicine. "Our state is a large importer of exotic animals and our climate is suitable for housing many species in outdoor enclosures."

The new clinic, which opened in May, will improve the Veterinary Hospital's service to wildlife parks, attractions and private owners.

Proposed Increases To License Fees

The Florida Legislature has sent the governor a bill that will increase hunting and freshwater fishing fees. The bill also establishes a saltwater license fee that will be regulated through the Department of Natural Resources, not the Game and Fresh Water Fish Commission. If it passes, the salt water fee will be $12 a year for Florida residents, $30 for visitors. No license will be required to fish from the shore or a pier.

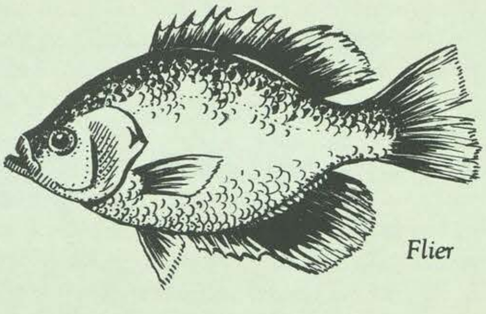
Freshwater Fishing Licenses

The freshwater fishing license fee will be increased from $7 to $12 for residents. Nonresident licenses will change from $10 for 10 days to $15 for seven days. Annual nonresident permits will increase from $25 to $30. These proposed changes will be effective October 1, if the bill is signed into law.

Hunting Licenses

Annual hunting license fees will be not be raised. However, the Florida Sportsman License will increase from $40 to $66. Wildlife Management Area stamps will increase from $10 to $25. The nonresident annual hunting license will increase from $50 to $150. Combination hunting/fishing licenses will be raised from $17 to $22.

Note: As we go to press, the Governor has not acted on the proposed legislative changes.



Flier

CORRECTION

Those "mystery bream" were so mysterious that we reversed their identification on page 11 of the May-June issue. The flier is incorrectly labeled bluegill, and vice versa. The correct spelling of the flier's scientific name is *Centrarchus macropterus*.

GFC Wildlife Officers In The News

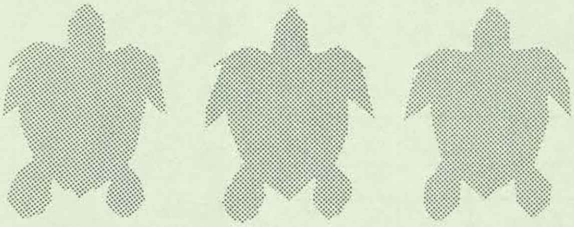
Possession of Loggerhead Turtle Eggs Hatches Record Fine

A Palm Beach County defendant was hit with a $108,800 penalty this spring for possessing threatened loggerhead turtle eggs. The landmark case sends a powerful message to wildlife law violators who sell the eggs for their alleged aphrodisiac qualities. The defendant was fined a penalty of $100 per egg plus the maximum fine for a second degree misdemeanor. One accomplice was charged with a $25,000 fine.

Sergeant Ros Welborn and Sergeant Ken Parramore confiscated 1,088 eggs during an arrest at McArthur State Park near West Palm Beach. This was the largest marine turtle egg haul in south Florida in several years.

"Wildlife law violators are getting anywhere from $2 to $3 per egg on the streets where misguided individuals think eating the eggs will restore or enhance sexual performance," said Col. Robert M. Brantly, executive director of the Commission. "This myth is behind an illegal trade which threatens the future of our marine turtles."

The Atlantic loggerhead turtle is listed as a threatened species in both state and federal classifications.



Sea Turtle Mortality Studied

The Center for Marine Conservation has just published a study that analyzes the interactions between sea turtle populations and shrimp fishing. The research indicates that accidental mortality of Kemp's ridley, green, leatherback, hawksbill, and loggerhead sea turtles is critically high and presents a major barrier to potential recovery. The report also shows a correlation to turtle nesting season (May through August) and shrimping activities. The authors present information on the relationship between sea turtle mortality, and July shrimping operations, thought to cause about one-third of the total yearly turtle strandings.

The report was prepared by sea turtle biologists Thomas Murphy and Sally Hopkins-Murphy and is available for $5 by writing to: The Center for Marine Conservation, 1725 DeSales Street, NW, Washington, D.C. 20036.

The Center for Marine Conservation will offer up to $1,000 for information leading to the arrest and conviction of anyone willfully killing threatened or endangered sea turtles protected under the Endangered Species Act. To report violations, contact the National Oceanic and Atmospheric Administration's southeast regional division of law enforcement at (813) 893-3145.

Rescue on Little Lake Santa Fe

What started out to be a relaxing sailboat ride on Lake Santa Fe ended up in a potential life-threatening situation. The recreational lake in Melrose, outside of Gainesville, is popular with boaters and anglers, although wind conditions are often fluky.

Wildlife officer Randy Cory of Keystone Heights was on water patrol on the lake when he spotted an overturned sailboat with an adult man desperately clinging to his two-year old son and to the side of the boat. Cory quickly maneuvered his patrol boat alongside and brought the man and child aboard. Although both were wearing life preservers, the child was nearing shock. After administering first aid, the officer towed the sailboat to shore and even gave them a few sailing safety tips.

Officers Receive Meritorious Law Enforcement Awards

Wildlife officer Adolphe Rogers was presented with the first annual commemorative Jeffery Young Award for outstanding law enforcement service. The Manatee Kiwanis Club presented the award in memory of Trooper Jeffery Young, who was killed in the line of duty last summer.

Officer Rogers has served in the Commission's law enforcement division for 32 years, primarily in Manatee County.

"The Florida Game and Fresh Water Fish Commission is extremely proud and honored the Kiwanis Club selected Wildlife Officer Rogers as the first recipient of an award that memorializes Trooper Young, an officer whose honesty, integrity, bravery and dedication to work was above reproach," said Capt. Don Arnold, regional law enforcement supervisor for the Commission.

Sgt. Jempsey Owen, of Jackson County, was one of five law enforcement officers honored during "Respect for Law Week" recently by the Marianna Optimist Club. In presenting the award, the service club praised Owen for making "several arrests this year for various game and fish law violations, including convictions for night-hunting deer."

Lt. Larry Lawrence, of the Everglades Region, earned recognition with the Florida Wildlife Federation's "Special Conservation Award" last year. He was also named the recipient of the "Excellence In Profession" award from the Florida Power and Light Corporation, "State Law Enforcement Officer of the Year" distinction from the State Law Enforcement Chiefs Association and several other professional awards.

The Shikar-Safari Club International's "Wildlife Officer of the Year Award" was presented to Officer John Jacobs of Osceola County at the May Commission meeting in Tallahassee.

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Floridana

Funny how the crawling, stinging, sucking and biting faction of Florida wildlife can drive one to question the divine scheme of things, beg for divine intervention. Two field guides to this infamous group that I recently looked at both began with prayers. One came from the Bible, "O Lord, how manifold are thy works! In wisdom hast thou made them all: the earth is full of thy riches!" Ironic, but reassuring. The other was by Townsend Glover, Florida's first federal entomologist:

From red bugs and bed bugs
from sand flies and land flies
Mosquitoes, gallinippers and fleas,
From hog ticks and dog ticks
and hen lice and men lice,
We pray thee, good Lord, give us ease.
All the congregation shall scratch and say Amen.

The adaptations of insects and mites for feeding on us are truly wondrous. The rate at which we itch, squirm and slap throughout the summer bear testimony to their ingenious design. More stealthy than any MIG Fighter, yellow flies are detectable only after they've dealt their blow. No-see-'ums are such tiny flies that they can penetrate our most advanced defense system: the fine mesh of a tent screen. And who could improve on the strategy of the dreaded chigger? The red bug army advances en masse to camp beneath the elastic of our underclothes, places we are too embarassed to scratch in public.

Mosquitoes are among the most visible and notorious of the hungry horde. Though many states besides Florida claim this bloodthirsty insect as their state bird, our state is often regarded as mosquito capital of the world with 67 species. Luckily, repellents for mosquitoes and other biting flies have improved beyond the mud and pig fat mixture that early settlers used.

Modern repellents work by chemically masking our distinctive aroma, the smell that advertises us as a warm smorgasbord. There is quite an arsenal, from synthetic to natural. Distressed by the fact that her commercial repellent had eaten the paint off its spray can, a field biologist I know procured the oil of the herb pennyroyal from her local food co-op. Though she smelled like a cough drop, she seemed safe in her boast, "There ain't no flies on me."

Body odor phobias pale next to the specter of chigger infestation. Sulfur is the best protection against these invaders, also discouraging their lancet-nosed cousins, ticks. Even after scrubbing these squatters off in a hot bath, their devastation remains. Both chiggers and ticks secrete a tissue-dissolving enzyme into our skin to make us more palatable victims; this can lead to wild and sleepless nights. Antidotes usually fail to measure up, but calamine lotion and antihistamines sometimes help abate violent reactions.

And by now you're probably suffering from a Florida phenomenon familiar to seasoned outdoor enthusiasts: phantom crawlers! What *is* that, anyway, wriggling down your spine, inching around your thigh...?

All the congregation shall scratch! Amen.

— Mary Tebo